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**COURIER OF MEDICINE.**

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**JOHN ZAHORSKY, M.D.**

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ORIGINAL CONTRIBUTIONS.

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The Baby Incubators on the "Pike."

A Study of the Care of Premature Infants in Incubator  
Hospitals Erected for Show Purposes.

By JOHN ZAHORSKY, M.D.,

ST. LOUIS, MO.

*(Continued from page 358, December, 1904, Number).*

THE FILTRATION OF THE AIR.

As mentioned, at the opening of the supply pipe, a double thickness of ordinary gauze was stretched and this was changed at intervals. The principal filtration, however, was done in the small metal box at the side of the incubator which had a lid and through which the air passed before it entered the incubator (Fig. 5). A wad of cotton in the pipe or even in the box was uncertain for if well packed it seriously interfered with the ingress of air. I finally decided on a thin layer of cotton which, between two layers of gauze, was placed over the opening of the box that led the air into the incubator. This gauze filter was held in place by strips of adhesive plaster and this was changed every other day; on very warm days

when the air supply was poor this filter had to be removed during the heat of the day.

A very thorough filtration of the air is impossible without using considerable force back of the air current and we can not depend on ordinary filtration to remove bacteria, hence it is the more important that the source of the air be from the outside.

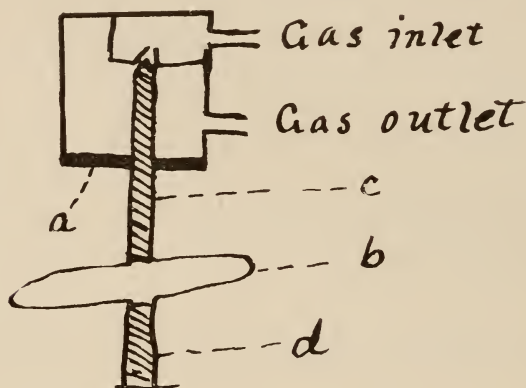


FIG. 6.—Diagram illustrating the mechanism of the Thermoregulator. *a*, soft rubber disk; *b*, hollow disk filled with ether, the expansion of which pushes upward the pin *c*, which closes the opening in the gas inlet and shuts off the gas; *d*, is a screw, by turning which the disk and its attached pin may be raised or lowered, thus making the regulator more or less sensitive to the heat.

#### THE REGULATION OF HEAT.

The heat supply was controlled by a thermoregulator in the upper rear corner of the incubator chamber. A hollow tin disk filled with ether pressed upon an iron pin which passed through a soft rubber disk into the opening which admitted the gas (Fig. 6). As the incubator became warmer the disk expanded and forced the point of the pin into the opening and thus shut off the gas supply. Theoretically it seemed a very simple and ideal thermostat, but practically the stability of the whole heating apparatus had much to be desired. We were not able to dispense with constant intelligent supervision of the heating apparatus, although the thermoregulators could be depended upon to turn down the gas flame when the incubators became too warm. The causes which forced us to supervise the heating and air supply will be discussed below.

## THE PRACTICAL DIFFICULTIES OF THE AIR SUPPLY.

The air supply, although forced downward by a fan, was by no means constant. There was a marked variation in the velocity with which it flowed through the incubators. On cool days, when the ratio of the atmospheric temperature and the incubator was 1 to 2 or 1 to 3, the anemometers rotated at a furious rate, but when the ratio rose to 3 to 4 or even 4 to 4, the circulation became poor. The hottest incubator had the most rapid circulation. When the outside air became warmer than the incubator the fan did not seem to be sufficiently powerful.

These difficulties were met in various ways. A too rapid circulation of air was moderated by increasing the thickness of the filtering gauze by a layer of cotton; sometimes the supply pipe was plugged in addition with a loose wad of absorbent cotton. When the air circulated too freely the difficulty of maintaining a constant high temperature was incurred; hence, as the external temperature fell near or below 40° some resistance to the intake of air was necessary in certain incubators.

When the outside air was very warm and the circulation of air correspondingly poor, all internal resistance to the flow of air had to be removed. On very warm days even a double layer of ordinary gauze could not be used for filtration purposes. Filtration of the air in the incubators had to be entirely discontinued on certain days, and the air supply of incubators not in use was shut off by tightly plugging the supply pipe; in this way the air supply in the incubators in use was correspondingly enlarged and the little fans were kept whirling at a rapid rate. The rapidity of the inflow was indicated by these fans, and our rule was that the fans should rotate just sufficiently rapid so that the individual blades of the fans were barely discerned and not so rapid as to make it appear as a single disk.

Another difficulty arose from the fact that the electricity from some reason had to be shut off during the night for a short time, but with the exception of a few very warm nights the circulation was sufficient. This defect of having the power shut off at night was finally remedied.

Theoretically it seems proper to get the air supply from the roof, but as this makes a long shaft which has great "drawing" power difficulties will arise. It takes a tremendous power

to force hot air downward, and when the air is cold it is forced downward by its own weight, displacing the hot air. The long vertical pipe, therefore, is very objectionable. It is better to obtain the air from the outside at a level or very little above the top of the incubator; in this way there will be less trouble with the velocity of air through the supply pipes.

#### DIFFICULTIES IN HEAT REGULATION.

The importance of having the incubators always at the temperature desired or at least at a constant temperature is self-evident, but even with the elaborate mechanism employed the incubators required intelligent supervision. Our nurses could not go to sleep for three hours and be awakened by the watchman as they seemed to have done in London.

In the first place the gas pressure in the supply pipes was very inconstant, so that on different days or different periods in the day the flames in the Bunsen burner were different in size. Especially in the evening when the many restaurants and other places using gas for heating and other purposes had all their burners in use, the gas pressure became so low that the flames with the gas turned on to its fullest extent were too small to keep the water in the heating coil near the boiling point, which would often be necessary in the evening. Many attempts were made to rectify this deficiency in the gas pressure. The Concession Company even purchased an expensive gas pump, which proved unsuccessful because it failed to work at times and, therefore, had to be cast aside. Fortunately the gas company in the last two months in some way increased the general gas pressure which remedied the defect during our coldest weather (October and November). Again, when the air outside was near the freezing point the air would enter too rapidly and cool the incubator; this was remedied by increasing the filtration cotton. When the gas flames were too small alcohol lamps had to be used to raise the temperature of the water in the heating coil; or water was boiled on the gas stove and the boiling water poured into the coil. Most valuable, however, in overcoming these deficiencies of heat was the thermophere. Whenever an incubator began to go down in temperature in spite of the gas turned on full, a thermophere, several of which were always ready in boiling water, was placed in the compartment beneath the baby. This is an admirable way in making up the deficiencies in heat.



But we had trouble in another way. In hot weather the incubators would get too hot. This was no fault of the thermoregulator but must be charged to the extreme fluctuations in temperature of the outside air. In a climate like St. Louis where the terrestrial temperature may vary  $20^{\circ}$  in a few hours, and the air is taken from the outside, no thermoregulator ever invented can be adequate. I need give only one example: The outside temperature one morning was  $70^{\circ}\text{F}$ . At noon the thermometer registered  $95^{\circ}$  in the shade. In the morning heat had to be applied to the incubators, and about 11 o'clock the thermoregulators turned the gas down, and it was turned entirely off by the nurses. At 12 o'clock noon, in spite of the fact that there had been no artificial heat for an hour, the temperature in the incubators was exceeding the prescribed upper limit, and the hot water was taken out of the coils; but the temperature still went up and iced water had to be poured into the heating coils of some of the incubators. To prescribe a temperature of  $84^{\circ}$  and to have the air streaming in at  $95^{\circ}$  gives the opportunity of making a refrigerator out of an incubator. This opportunity arose several times last summer.

It will be seen that the difficulties were such as to necessitate a constant supervision, and I feel that no sort of a machine can replace intelligent watchfulness when it comes to rearing premature infants. This supervision is furthermore necessary because the incubator's temperature was often changed according to the needs of the infant.

There can be no doubt that the principal cause of the variation in heat is the inflow of air from the outside. In a changeable climate it seems best not to obtain the air directly from the outside, but it should first pass through a large chamber in which its abnormal condition is modified.

#### THE HUMIDITY.

We tried to maintain the humidity at about 60 per cent, but the variations were extreme in spite of care. In warm weather with rain outside it often rose to 90 per cent; when the air was dry and cold outside it would fall as low as 10 per cent. The pan of water in the drawer is situated below the water coil and therefore its evaporation is too slow. By placing wet cotton or twisted gauze in a beaker in the side box an additional moisture could be obtained, but all this was insufficient in cold weather.

The best way to raise the humidity rapidly is to pour hot water in the evaporating pan, but as soon as the water cooled the humidity dropped again.

The trouble with the humidity again depended on the fact that the air was received from the outside.

Considerable relief was obtained when the electric coil in the large inlet pipe was hot and moistened cotton was put in the small air box at the side of the incubator. I do not see how an incubator could be constructed to remedy this entirely.

### HOSPITALISM.

In a restricted sense, the term hospitalism is applied to a species of intoxication found in infant asylums and characterized by fatal malnutrition, atrophy and death. In another sense it has been used to designate the poor resisting power of such infants to all infectious processes. In a wider sense it signifies the aggregate of etiological factors which cause such an enormous death-rate in all infant asylums and hospitals. It is in this wider sense that the term is here used.

It is well known that the death-rate in foundling asylums ranges from 35 to 80 per cent. enormously exceeding the mortality of infants in homes. The causes which lead to this are various but, as a rule, the high death-rate is principally attributable to the introduction of some pathogenic organism and its dissemination among the infants. Now, the same factors which cause this morbidity and mortality in foundling asylums are very prone to be operative in an incubator institute. Hence, to whatever difficulties may be encountered in rearing the babies on account of their premature birth, are added the great dangers of keeping many babies together and nursed by the same individuals.

The death-rate, therefore, in such an institution will always be much higher than the death-rate of such babies in private practice. So that I am not at all convinced that such institutions are a blessing. There are death-dealing causes connected with such an institution that are extremely difficult to overcome.

It was hospitalism that made the mortality so high before I took charge, and it was operative for some time even after radical changes were made in the management. Its inception began with a very sick baby which was obtained from a foundling home. Following its arrival the mortality rapidly in-

creased. Some blunder in the milk supply added another infection and enteritis and marasmus carried the infants off. It is rather significant that the symptom of hospitalism arose after a baby was obtained from a foundling home.

The prevention of hospitalism then is the first duty of an incubator institute and it takes money, great care and well-trained nursing to accomplish this.

In the first place no infant should be admitted that is several days old and shows some gastrointestinal or any other infection. I consider the admission of a sick baby from a foundling home several days old as the greatest mistake of the former management.

In the second place, only mother's milk should be fed to incubator babies, and even "graduates" must obtain a mixed feeding. At least mother's milk confers an immunity to infection on young babies which can not be supplied by any modification of cows' milk.

The most rigid asepsis must be practiced in regard to everything that enters the mouth of the infant. Sterilization and cleanliness are absolutely necessary. No nurse who takes care of an infected baby, however mild it seems, should at the same time care for a well baby.

A recent valuable contribution on the subject of the arrangement of an infant hospital is by Klautsch.—*Archiv Kinderheilkunde*, Vol. 39.

#### DISINFECTION OF THE INCUBATORS.

The frequent disinfection of the incubators has been especially insisted upon by Budin. The Kny-Scheerer incubator is well made for thorough disinfection. It can be washed and an antiseptic applied; as to the antiseptic to be used little is found in literature. After Bertin insisted that incubators may serve as a source of infection and must be so constructed in order that they may be disinfected, Lion fulfilled the requirements, and an incubator was constructed that could be sterilized by dry heat or steam; but this can not be done very often unless special provisions for this has been made. Hence, I had to select antiseptics. I rejected formaldehyd for the simple reason that the irritating fumes which emanate from the disinfected surfaces might prove injurious to the inmate. While its occasional application to an incubator in which the infected infant happens to be placed, may be recommended, as a disin-

fectant for daily use it has serious objections. For a different reason corrosive sublimate could not be used, since its corrosive effect on nickel plate and iron is too well known. On the other hand, carbolic acid or tricresol have not these disadvantages, but as some of these antiseptics must adhere to the crevices and be gradually evaporated it might prove deleterious. Most of the ordinary antiseptics proving objectionable, alcohol in a strength of 70 per cent was chosen as the safest disinfectant; this seemed ideal, especially as Harrington's recent experiments were fresh in mind. Each day everything was removed from the incubators and the inside given a thorough wiping with a moist cloth. This was followed every other day by a careful sponging of all metallic and glass surfaces with 70 per cent alcohol; a few minute's airing sufficed to get rid of the alcoholic vapor. No infection was traced to the incubators during my service.

As to the attempt of disinfecting the air, here and there hinted at in literature, it is only mentioned to be pronounced ridiculous. The use of sulphuric acid to dry and cleanse the incoming air also is useless and not devoid of danger.

#### THE PREVENTION OF INFECTION.

The most iron rules must be laid down to prevent microbic infection. Each infant must have its own thermometer, bottle and clothing. For various reasons this rule could not always be followed; but the thermometers were kept in a sublimate solution and rinsed immediately before using. The bottles and nipples were thoroughly boiled between each feeding and an additional supply constantly kept on hand in a solution of boric acid, and were washed in sterile water before using. No diaper was used a second time. For the same reason it is dangerous to apply several babies in succession to the same wet nurse; the disinfection of the nipple is by no means easy. Thrush and mild gastrointestinal infection can arise in this way. The wet-nurses' nipples were disinfected with dilute alcohol or boric acid solution.

The most dangerous and, as it proved, the most certain means of conveying infection is the nurse's finger; without conscientious, trained nurses, accidents will happen. With each baby there is a possibility of introducing some new pathogenic micro-organism, and sometimes even before it is recognized another baby may be infected from this. Every new-



comer must be carefully watched for several days as to the appearance of infected eyes, mouth or umbilicus.

By our means an infection was practically excluded. One baby developed furuncles; the same trouble appeared in others, and when I took charge, by rigid isolation of all clothing a further spread was checked and healing took place under treatment. The mouth was the most common seat of infection and our attention must be especially laid upon this point of entry.

In all such institutions the well must in every way be entirely separated from the sick and provisions for this separation must be supplied.

#### CLOTHING.

There seems no good reason why a premature infant should not be clad as other infants; they should be warmly clad even in an incubator. It is a mistake to depend entirely on superheated air to prevent the loss of heat. The inhalation of such hot air neither stimulates respiration or metabolism and favors infection; hence, we should depend in a great measure on good clothing to lessen heat radiation from the body. Too much clothing in the very feeble necessitates too much manipulation, and still we adhered to the old custom of wrapping them in cotton, but this was adhered to for a short time only (one or two weeks), when the ordinary clothing of infants was placed upon them.

The subjoined halftone (Fig. 7) illustrates the articles of clothing for a premature infant: A soft woolen shirt, a diaper, flannel band, cotton and a covering of gauze in which the body is wrapped. Eross was probably correct in attributing little warmth to these envelops of cotton—loose cotton is not warm. A soft light woolen blanket would really seem preferable in private practice, or lamb's wool should be used instead of cotton. We recall one instance where a father brought a premature infant safely to the incubators which had been wrapped in absorbent cotton and then enveloped in several thicknesses of a blanket. It would seem safer to substitute some thick woolen goods for the gauze to be used over the cotton. The diaper in all cases consisted of a layer of absorbent cotton and sterilized gauze (Fig. 8). Every morning and evening enough of these diapers were made for half a day. As soon as they were wet or soiled they were discarded and burned. When it

is known that we used about \$5.00 worth of sterilized gauze daily just to make napkins it will be seen what expense is found in such an institution. In no case was it permissible to change the diaper of one baby for that of another when slightly wet and then dried.



FIG. 7.—The first clothes of a Premature Infant, consisting of a flannel shirt, flannel band, diaper of cotton and gauze, and cotton and gauze envelop.

Long knit socks or stockings were put on all infants which were pinned to the diaper in the usual way.

#### LIGHT.

Ballentine (*British Medical Journal*, May 17, 1902), Rotch and others declare that premature babies should be kept in darkness. On the contrary, our babies were kept constantly in the light; for, as mentioned, light was necessary to show the incubators and at night it was necessary to permit of their care. While the light was much subdued after 11 p.m. the infants were never in darkness. I was unable to discover any harmful effect of this light.

## EXERCISE.

Even the youngest infants should have their arms out so that it can move them; this permits a little motion and assists the respiration and circulation.

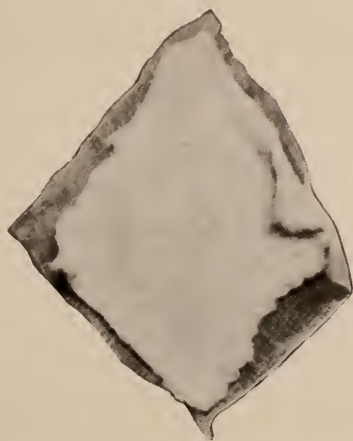


FIG. 8.—The aseptic diaper.

## BATHING.

The question of bathing like so many questions concerning premature infants is considered from a different standpoint by each author. Some interdict bathing for the first week or ten days, while others recommend its daily use. Rotch says that the premature infant should not be bathed but should be rapidly covered with warm sweet oil and wrapped up in absorbent cotton; this is changed only every forty-eight hours, when the infant is again covered with oil. Voorhees gives very similar directions. Monti recommends that premature infants be bathed at once after birth in water at a temperature of 29 to 30°R. (about 98°F.). He furthermore believes that sponging the baby once or twice daily is very advantageous as a circulatory stimulant. Parts of the infant are successively exposed and washed with sterilized cotton dipped in warm water; a mild soap can be used. This stimulates the function of the skin and prevents infection. Blair also finds daily repeated baths helpful to stimulate the circulation and the skin. Budin is an ardent advocate of daily bathing in warm water, but he finds it especially of service in those infants whose

temperature remains below normal. Finkelstein has likewise corroborated the value of bathing.

For the purpose of increasing the rectal temperature Budin advises two procedures: Where a rapid elevation of the temperature is desired the infant is plunged into a bath at a temperature of  $37^{\circ}\text{C}$ . and remains there until its temperature is normal. However, he finds that if the infant is placed in the bath at a temperature of  $1^{\circ}$  above the infant's rectal temperature and then gradually raised during fifteen or twenty minutes until it reaches  $37^{\circ}\text{C}$ . the infant's rectal temperature will remain normal much longer than it will when raised rapidly by the former method. The temperature of the water is elevated by the addition of warm water which should be poured into a funnel to which a tube is attached which reaches below the surface of the water in the bath tub. If the water is gently poured into the tub the warmer water has a tendency to float on top and does not mix with the cooler water.

We followed Rotch's directions in the main. The infant was rubbed with oil and placed at once in the incubator. The baby was not bathed for several days, when a daily sponge was begun; this was done with sterilized cotton, one part after another being exposed; after this it was given an oil rub. In several instances a warm bath was given when the infant's temperature fell below  $96^{\circ}\text{F}$ . For rapid elevation of the rectal temperature the warm bath is the ideal method and should always be resorted to.

I shall have to obtain more evidence than I possess at present to believe that this frequent bathing is necessary. Of course, when the temperature of the incubator is kept too high, as Blair's figures evidently are, or if the incubator temperature is kept too low as Budin evidently does, at least for infants weighing less than 1200 grams, these baths must be absolutely necessary; in the one case to cool the infant and in the other case to heat the infant. But if the infant's rectal temperature is maintained between  $97$  and  $98^{\circ}\text{F}$ ., bathing will be found unnecessary. A daily sponge and afterward a good rub with oil will usually be found sufficient. If the baby's temperature is below  $96.5^{\circ}$  or above  $100^{\circ}\text{F}$ ., the bath should be given.

There is, however, one possible advantage of frequent bathing during the first few days of life and that is that the skin has an opportunity to imbibe water, for usually an insuffic-



ient supply of water is given during the first few days. Still, as it will be found easier to give the same amount of water by the stomach or rectum this advantage is not worth considering.

#### THE OIL RUB.

Many authors do not mention the oil rub. Some seem to think it unnecessary, others believe it is a mistake to use it, still others recommend it. It is difficult to conceive any serious objections to it. As massage is so helpful it is really necessary to have some emollient for massage on the dry tender skin. Furthermore it protects the sensitive skin somewhat from irritation, and as a means of cleansing it should by no means be dispised. Then there are two specific reasons which, therapeutically at least, should be given due consideration :

First, the oiled skin prevents a too rapid heat loss, the oil acting as a non-conductor, and, finally, the oil prevents to some extent the evaporation of water, which in a warm incubator should always receive attention. In fact, the rapid loss in water is one of the most serious menaces to the life of the infant.

Just what oil should be used is somewhat indefinite. Probably any non-irritating oil will answer. We used olive oil, Rotch recommends sweet oil. An animal fat would seem to be preferable, so that fresh lard or fresh butter might be used; the tendency of the latter to become rancid will, no doubt, be a serious objection. Cocoanut butter should also be permissible. The odor of cod-liver oil makes it objectionable. The oil should be sterilized by heating for several minutes and placed in sterilized bottles; it should be applied with sterilized cotton or a thoroughly disinfected hand.

#### EXERCISE-MASSAGE.

All authorities agree that massage and passive movements are beneficial. The infant's limbs should be free so that movements are possible. Complete swaddling, therefore, is unwise. It was our custom to massage the infant every morning after the bath. The loose clothing permitted active movement. A good cry several times a day is helpful in that it removes atelectasis and increases oxygenation.

*(To be Continued.)*

## Electricity as a Curative Agency in Gynecology and Oncology.

By G. BETTON MASSEY, M.D.,

PHILADELPHIA, PA.

I SHOULD probably preface these remarks with the explanation that the little used word, "Oncology," is defined by Foster as descriptive of the science of tumors, and is used in this paper to refer broadly to the science of benign and malignant growths.

The progress of electrotherapeutics in displacing various less useful and harmful procedures in gynecology can only be appreciated by those who are in touch with the many hundreds of physicians throughout the country who are using it, and who report highly satisfactory results from its use. There are some who decry the results to be obtained from it, it is true, but an analysis of the personelle of its opponents will invariably disclose two strong reasons for their opposition, either of which disqualifies them for the expression of a truly scientific opinion; one condition invariably present, in my experience, amongst those opposed to electricity is an absolute ignorance of the remedy and its practical application. I do not for a moment say that the eminent surgeons who may be placed in this classification are ignorant men, in the ordinary sense; but I do say that a man trained to the performance of major operations, and necessarily occupied in this work alone if great skill has been acquired, is no more fitted to give a useful opinion on the subject at issue than he would be to draw the plans for an electric power plant, or to compute the orbit of a new planet. And, moreover, the work in which he is most interested differs so completely from gynecologic electrotherapeutics that we should not expect him to develop his crude ideas into an expert knowledge in a work so entirely different from his chosen path.

The second condition characterizing the opponent of electrogynecology is that natural state of mind attending all rivalry amongst human beings. As long as we have a proper devotion to our work we will look askance at the claims of others to better results by the pursuance of different methods.

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*Read before the Medical Society of City Hospital Alumni, September 15, 1904.*

The purpose of these remarks is by no means the use of harsh language concerning a body of men who have done so much in many ways to advance human experience and knowledge, though it may be said that there are many fitting rejoinders to the characterization of "tinkerers" thoughtlessly applied by some to those who seek to restore the health of their patients by the use of harmless methods. When a man unnecessarily employs a method that may sacrifice the life of his patient in spite of his best efforts, he dwells in a house with most diaphanous walls, and should beware of the use of even verbal projectiles.

But I do wish to point the finger of scorn at the physician of today who is deterred from inquiring into the merits of this controversy, in pursuance of his duty to his patient, by the numbers and fashionable recognition enjoyed by the opponents of electricity. Such men have always been with us, even in the days of universal venesection. I must also pity them, but, more particularly do I pity their unfortunate patients.

Had Tripier and his pupil Apostoli never been born, we would doubtless, in time, have seen the absurdity of a point of view, reserved entirely for gynecology, which regards amputation of organs as the principal method of curing them, for the idea is illogical of itself; though but little more so than that the only other methods of value are slitting, sewing up, or scraping these organs. In the future history of gynecology such an era will surely be looked back upon as primitive and barbarous.

Concerning the value of electricity in minor gynecology, I shall not particularize beyond pointing out the large proportion of these ailments due to functional incapacity, local trophic derangements and chronic inflammation; and the peculiar possibilities of this agent, so well known as a remedy in these conditions, when applied in the pelvis, where the insensitive surfaces and structures permit the use of stronger currents than anywhere else in the body. Of its value in functional incapacity, whether neural or muscular, I need not speak. In trophic disorders, including displacements, relaxations and many menstrual affections it is of unrivalled value. Finally, in removing the consequences of pre-existent inflammatory conditions nothing is equal to the polar or interpolar action of the constant current; and it should be remembered that the diseased condition to be relieved is still a single inflammatory

process, whether it be situated in the uterus, tubes or ovaries, and therefore amenable to the same agency.

In the field of oncology, permit me, as one with some experience, to quote the results attained in the use of the Apostoli method in 110 cases of fibroid tumors of the uterus reported by me to the Philadelphia County Medical Society, April 13, 1904. Some sixteen years has elapsed since many of these cases were treated, and a special effort was made to obtain reliable statements of their present condition.

Of the 110 cases, 22 reported the disappearance of the tumor, with restoration and continued good health, while 53 reported more or less reduction in the size of the tumor with equally complete and permanent restoration of health. This totaled 75 cases of success out of the one hundred and ten cases treated. Of the remainder, 26 reported unsatisfactory results or were already known to me to have been unsatisfactory, including one case of cystic intrauterine growth made worse by the treatment. Nine cases could not be traced, largely transient clinic patients who were doing well while attending the clinic.

In the sixteen years, more or less, that these patients had been under observations but seven had died, all instances that had been included among the twenty-six failures. Of these seven patients but one had died of the fibroid itself, proving non-mortal character of this affection. Of the remaining six, one died long after treatment of an affection totally unconnected with the growth, one of septicemia under electric treatment as related above, and four while being operated on with the knife.

Barring mistakes in the selection of cases, it is evident from these statistics that about three-fourths of all suitable cases will be practically cured by the Apostoli treatment, the remaining being called out for operative treatment should it become necessary.

But the resources of electricity in oncology are by no means exhausted with the establishment of the Apostoli treatment for suitable cases of fibroma. An even more valuable method for the treatment of malignant growths in accessible portions of the body has been given to the profession by myself in the zinc-mercury sterilization by cataphoresis, where the electric current is employed to overwhelm a growth by the diffusion of the destructive ions of metals. This method is

strictly surgical, and not a trophic stimulation, and presents a spectacular immediate effect when employed under general anesthesia that invites the attention of all progressive surgeons. Its advantages are, that a large growth may be sterilized and destroyed in from thirty minutes to an hour and a half, without the loss of a drop of blood, the growth coming away in twenty one days of itself, while the surrounding tissues are sterilized by the destruction of outlying cancer cells.

This subject which was presented to the International Electric Congress, at its late session held in St. Louis, and I will only say at present that it enables us to permanently eradicate a large proportion of all cases of cancer still local in situation, and that it is a valuable local palliative in those cases that are incurable by reason of metastatic internal deposits.

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## Chronic Skin Diseases.

By ROBERT M. STERRETT, M.D.,

NEW YORK CITY.,

Former Demonstrator of Surgical Pathology, College Physicians and Surgeons,  
Chicago; Former Attending Physician, Westside Free Dispensary,  
Medical Department, Chicago.

THERE is possibly, no class of diseases in all the range of medicine that cause the general practitioner more petty annoyance, than chronic diseases of the skin. Yet, many of these cases may be relieved and cured by a little study of the real causes of the maladies, and a scientific adaptation of dietetic and therapeutic measures, to that end.

It is a rule of physiology that organs of similar functions sympathize with each other more than with organs which differ widely from them in their part of the performance of life's drama.

For example, the stomach, the salivary glands, the pancreas; the heart and the kidneys; the brain and general nervous system; the skin, the lungs, the bowels, and kidneys.

When there is impairment in the function of the bowels—particularly of the colon whose function is elimination, the skin, another eliminating organ, is almost certain to suffer from over-



activity of function by reason of vicarious performance of the duties of the bowel. In other words skin diseases, especially the chronic inflammations, are largely due to insufficient retrograde metamorphosis—lack of elimination of waste.

Another cause of certain diseases of the skin is to be found in the improper kind and amount of food taken by the patient. Abnormal amounts of sweets, by causing undue fermentation in the stomach, produce indigestion, which means imperfect digestion, and consequently imperfect assimilation. The waste matter increases in undue proportion to its elimination, the blood becomes filled with the products of imperfect tissue metabolism, and this condition becoming chronic, leads to many chronic ailments, prominent among which are the various forms of acne, urticaria, prurigo, impetigo, eczema, etc.

The treatment of the various dermatoses is internal and external medication, baths and attention to the quality and quantity of food taken by the individual suffering with the disease—whatever be its name.

That unguent alone will not cure these troublesome diseases, is well understood; they require especially in the chronic forms some internal medication, and special attention to diet.

One of the most frequently prescribed remedies in chronic skin diseases is arsenic, in some form. It is useful in the dry conditions of the skin, and rather does harm in acute conditions.

There are remedies used largely by the eclectics which, when properly indicated and when pure, act much better than arsenic, both in stimulating healthy nutrition in the skin, and by their power to increase physiological waste. Among these is alnus (Tag. Alder). I prefer the concentration alnuin which seems to contain all the good qualities of the drug. In doses of from  $\frac{1}{8}$  to  $\frac{1}{2}$  grain, three or four times daily for a considerable time (all chronic disease require time to break up the disease habit), it, in combination with proper diet and a course of laxative treatment to cleanse the bowels; alnuin will accomplish some surprising results. In cases of sallow women, in connection with juglandin and chionanthin the results are far better than those produced with arsenic, without any of the draw-backs of the latter drug. Chionanthin is the active principle of the main ingredient of a well advertised pro-



prietary compound of very pronounced efficacy according to reports of some physicians. I have not had much experience with the drug except in the form of the concentration.

As to external applications, there are many—each physician having his favorite, which, to him, is the best.

But, the use of alnuin in nearly all forms of chronic skin diseases, is well worthy of trial.

[521 W. 123rd Street.]

## Chewing Gum In Typhoid Fever.

By GEO. RICHTER, M.D.,

ST. LOUIS, MO.

A YOUNG man, aged 18 years, was recently attacked by a mild form of typhoid. The diagnosis was verified microscopically and chemically. Widal- and diazo reaction positive in due time. The only irregularity about the case was the large amount of mucus, which at intervals appeared in the stools. There was a tendency to constipation which called for repeated doses of castor oil. After about three weeks, defervescence commenced, but soon after a relapse set in. The nursing was done by a very intelligent and careful nurse. Ten days later the fever subsided once more, yet the mucus evacuation repeatedly puzzled the attendants. Again, after a few days, a relapse occurred of the mildest possible character.

It was only now learned that the young patient was being supplied with liberal quantities of chewing gum—of what kind I unfortunately forgot to learn. This practice was stopped at once, and never since a mucous stool has been observed in the case. It would seem quite plausible to assume, that the continuous chewing—ten cents worth a day—would cause a rather abundant flow of saliva. The mucus in the saliva is not digested, passes through the intestinal canal and makes its appearance as a slimy coating of the evacuation. With the relapses the chewing gum had, probably, nothing to do. Possibly the chewing may have helped to keep the tongue moist, still it would not seem to be a rational plan to advise chewing gum for this end.

The patient has since recovered completely, without any further trouble. Another feature, however, in this case merits mention: The nurse, a graduate of one of the best known training schools, had been told in a simple, plain manner, that the patient must not have any more chewing gum. At that she took such offense that she declared she would not work under a physician who forbade such practice; she had never heard of any harm arising from it, and not listening to all entreaties to stay with the patient whom she had been nursing faithfully for so many weeks, she left him abruptly.

One has to be very circumspect with some of the "trained nurses."

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### Lumbar Puncture in Hydrocephalus.

Lowenburg (*Am. Med.*, August 6, 1904) gives his experience in the treatment of a case of chronic internal hydrocephalus by means of repeated lumbar puncture. The patient, 20 months of age, was subjected to this treatment once a week for a period of two months, at each sitting between 50 and 60 cc. of cerebrospinal fluid being withdrawn, which resulted in marked improvement of the child's condition, even to the extent of a noticeable diminution in the size of the head. At the end this time, however, the child died suddenly as the result of pneumonia following an attack of measles. From a study of this and other causes Lowenburg prefers repeated lumbar puncture to direct drainage of the ventricles on account of the greater safety, but before resorting to this measure one must be certain of free communication between the ventricles and the subdural space and there must be no ossification at the sutures of fontanelles. On account of the latter contingency treatment should be instituted prior to the twenty-fourth month, while the question as to the potency of the ventricular and subdural tracts may be determined by the observation of a scaphoid shape to the fontanelles after the first puncture.

Von Bokay (*Jahrb. f. Kind.*, Bund 51, 1903) has previously reported favorably upon the employment of systematic lumbar puncture in this disorder. He advises the withdrawal of the same amount of cerebrospinal fluid but lengthens the interval between treatments to four weeks, as a rule. In his experience there usually exists a route of communication between the lateral ventricles and the subdural space not only in the chronic but the acute variety of hydrocephalus, either congenital or acquired.

## LEADING ARTICLES.

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### THE INTERNATIONAL CONGRESS OF ARTS AND SCIENCES.

By EDMUND A. BABLER, M.D., St. Louis.

*(Continued from page 394, December, 1904, Number).*

#### PATHOLOGY.

Professor Simon Flexner, director of the Rockefeller Institute, the chairman of this section, presented Professor Paul Courmont, of Lyon, who read the memoir on New Researches in connection with the Pathology and Diagnosis of Abdominal Aortitis, which was to have been delivered by Professor Teissier, of Lyon, who had made a very thorough and careful study of 35 cases of abdominal aortitis and considered primary abdominal aortitis more frequent than Potain would have us believe. He found that primary aortitis might follow direct exposure of the abdomen to cold, prolonged fatigue, or might follow traumatism. A pre-existing enterocolitis might induce aortitis.

Subdiaphragmatic aortitis might be induced by certain infections, *e.g.*, acute articular rheumatism, gout, tuberculosis, grip, puerperal fever, and syphilis. Secondary abdominal aortitis might be due to the direct extension of some degenerative process in the thoracic aorta, *e.g.*, atheroma, rheumatism or syphilis; or to a peritonitis following an inflammatory process in other organs, *e.g.*, perityphlitis, appendicitis, pericholecystitis and enterocolitis.

The symptomatology was considered very obscure and complex. He emphasized the diagnostic value of hyperextension of the dorsalis pedis artery of the foot as compared with the normal radial tension. He had found that the hyperextension of the dorsalis pedis was frequently commensurate with the inflammatory intensity in the subdiaphragmatic aorta. Complete disappearance of this hyperextension was coincident with the cure of the disease. A condition of cardiac intermittency had been observed by him which had apparently been

due to pressure on the aorta at its passage through the diaphragm. A pathognomonic spasmodic icterus occurred sometimes in the crisis of subdiaphragmatic aortitis in connection with predisposing diseases, of themselves insufficient to occasion jaundice. He considered subacute or chronic nephritis as among the most frequent complications of this affection. The nephritis might be cured but there remained a renal insufficiency. Aortitis might cause a temporary albuminuria or an intermittent diabetes as a consequence of the interrupted blood supply to the kidneys and pancreas.

Attention was called to the difficulty of diagnosis between true aortitis and simple aorteurysma; certain of the symptoms of aortitis might lead to a diagnosis of aneurism of the aorta or similar tumor in the epigastric region.

Professor Johannes Orth, of the University of Berlin, read a paper on Pathology and its Relation to Other Sciences.

Professor Kitasato, of the University of Tokio, Japan, then gave a very interesting address which commanded extraordinary attention and consideration.

#### SURGERY.

Dr. Carl Beck, of New York, presided over this section, and presented Dr. Frederick Dennis, of Cornell Medical School, whose monograph on the History of the Development of Surgery, was well received. He stated that the history of surgery for the past hundred years constituted one of the most remarkable chapters in the progress of science. Even the terrible Inquisition was outdone by the tragedies of a hundred years ago enacted under the name of surgery. The introduction of anesthetics had exerted a most important influence on the development of surgery; next to this came antiseptics, the discovery of which had exerted a most beneficial influence on the diseases of human suffering. Modern therapeutic and diagnostic methods have given valuable assistance to surgery. Electricity, especially the Roentgen rays and the Finsen light, had been of value. The inoculation method must be remembered. The fourth important influence had been the development of old operations and the discovery of new methods, among which might be mentioned trephining, suture of heart wounds, gastrectomy, gastrostomy, gastroenterostomy, appendectomy, etc. The foundation of the abdominal surgery of today was the outcome of McDowell's labors. From a mortality of 100 per cent, this operation



had developed until at present a series of 93 cases had been presented without a single death. The mortality in the treatment of compound fractures had diminished from 68 per cent to  $7/10$  per cent. In surgery nothing had detracted from the wonderful achievements. He stated that America had done more toward the perfection of surgery than any other country.

Dr. Beck responded, and stated that the discovery of anesthesia alone deserved a monument in every city and hamlet. America had by this single success done enough for surgery. America had also taken the lead in experimental science, and aseptic surgery was more thoroughly practiced here than elsewhere. The time was not far distant when a visit to America would be considered necessary to the completion of the surgeon's education.

Professor Orth, of Berlin, delivered an address on Cancer, which met with favorable consideration. Professor Escherich, of Vienna, presented a monograph on Umbilical Hernia, bringing out quite a number of excellent points. Dr. Herman Tuholske, of St. Louis very vividly depicted an unusual and interesting case of Extrauterine Pregnancy. Dr. A. C. Bernays, of St. Louis, made interesting comments on Dr. Dennis' paper.

#### PREVENTIVE MEDICINE.

Dr. J. M. Matthews, of Kentucky, presided. The session was well attended and important. The chief speaker was Professor Donald Ross, of Liverpool, whose paper, entitled, A Logical Basis of a Sanitary Policy for the Prevention of Mosquitoes, was profusely illustrated by means of excellent diagrams. He reviewed the work that had been done in the attempt to exterminate mosquitoes. The question of mosquito reduction was only part of a larger subject—that of the local reduction of any animal organism. He was confident that it was possible to arrest the propagation of the mosquito for as long a time as desired, provided all breeding places were obliterated or the larvæ persistently destroyed. The limit of migration was the extreme limit the insect might travel in a straight line during its entire life; a very small proportion would travel that distance in a straight line; the majority would travel back and forth, or in a circle, or at various angles, always remaining not far from the place of birth, and finally die in that neighborhood.

The analysis, though imperfect, contained four theories: 1, Mos-

quito density can be reduced at any point as much as was desired by making the radius of the antipropagation operations large enough ; 2, in order to secure zero density, the radius of operations must be greater than the limit of migration ; 3, at the boundary of the no-propagation country the mosquito density should be one-half the normal density, provided the radius of operations be not less than one half the limit of migration ; 4, the effect of the operations will be felt not only within the antipropagation area but to a distance quite to the limit of migration beyond it.

#### NEUROLOGY.

This important section was presided over by Dr. L. F. Barker, of Chicago University. Professor Kitasato, of Japan, was the first speaker. He gave a very interesting and critical study of Leprosy—its etiology, symptoms, diagnosis and treatment. Professor J. J. Putnam, of Boston, read a paper on the Value of Physiological Principle in the Study of Neurology, in which he stated that Professor Vichow's address on the Anatomical Principle in the Study of Disease, had been of great value. Many conditions were present whereby the best insight into the mysteries of disease could be obtained by studying the manifestations of life in that form which was called the symptoms of disease, and when this was done thoroughly the extent of the derangements to which the symptoms pointed was surprising. If these symptoms did not carry the investigator to the heart of the disease they did not carry him to the heart of the symptoms. The problem presenting itself to the physician at the bedside of the patient was the analyzing of a complex group of signs or symptoms. The more striking part of these symptoms was often due to efforts on the part of the organism to readjust itself to the new conditions or internal environments, rather than to any direct action of the primary or secondary lesion. Two questions suggested themselves: 1, what was the significance of symptomatology as a help toward solving the riddle of disease, and, 2, did the fact that many symptoms are the indications of reaction on the part of the organism, rather than the direct effect of primary or secondary lesions, disqualify them for the purpose of diagnosis and deciding on proper treatment ?

An answer to the first question depended largely upon that to the second. Dr. Putnam replied that the signs of reaction so far from being disqualified for the purpose of the physician were eminently



fitted thereto. The effects of such a lesion constituted the principal part of what was requisite to be known and all that could really be learned, for the diseased process considered as independent of these reactions was an obstruction without real existence. In no department of pathology was it so difficult to arrive at satisfactory conclusions by the aid of anatomical methods alone as that of neurology. The terms functional and organic are medical terms that help perpetuate false ideas of a pathological, physiological and clinical variety. When a disorder that would be called functional was hostile to the fundamental interests of the organism, it produced manifest disorders of nutrition.

#### OTOLOGY, RHINOLOGY AND LARYNGOLOGY.

This section, presided over by Professor William Glasgow, of Washington University, convened Wednesday. Sir Felix Semon, physician extraordinary to the King of England, was the principal speaker. His interesting subject on the Relation of Laryngology, Otology and Rhinology to other Sciences, was excellent. He surveyed the intimate connection of laryngology, otology and rhinology, in addition to their relations with other branches of medicine, with physics, chemistry, mathematics, philosophy, history, biology, technology and music. The question of illumination for purposes of examination was of the greatest import to each of these sciences; this applied with particular force to laryngology. Professor Czermak was the first to substitute artificial light for the uncertain rays of the sun, he used the large ophthalmoscopic mirror of Rente for concentrating the luminous rays. Fürck and Störk employed a large glass globe filled with water. At present we have the small electric lamp. Roentgen's wonderful discovery had been most happily utilized for the purposes of laryngology. The microscope helped us to differentiate between benign and malignant conditions. Stroboscopy, photography and stereoscopy were also referred to. The chapter on sound was of the greatest importance to the otologist; the tuning fork was one of the indispensable weapons of the aurist. Dupont had attempted to use the phonograph to investigate the modifications of speech in different forms of paralysis, etc.

König's sensitive flame had been utilized for the registration of sound-waves produced by the human voice.

There were probably few collateral sciences in which our specialty

was so keenly interested and the progress of which so greatly benefits us as electricity in all its different forms. Synthetic chemistry gained every day in importance for us by enriching us with new and important pharmaceutical preparations. He looked forward to the day when physiological chemistry would enable us to recognize subtle differences in the composition of nerves and muscles. The resources of mathematics have to be laid under contribution occasionally by our specialists. Dr. Gevers, of Leuven, measured mathematically the permeability of the nasal chambers. Every medical man who wishes to approach a medical question from the statistical point of view should make himself thoroughly conversant with the standards of his measurements before applying the latter to the question which he intends to study.

Meteorology and climatology deserved careful consideration. Be sure that the patient with laryngeal tuberculosis or middle-ear catarrh was sent to the correct place. The connections of philosophy, logic, history and literature with laryngology and otology were not so tangible as those of chemistry, etc. The philosophical man would have broader views and not be carried away by fashionable currents of the moment.

From year to year laryngology, otology and rhinology tended more and more to become branches of surgery. Of the intimacy of music to laryngo rhino otology there could be no doubt; without what is called a "musical ear" music was an impossibility altogether; without the possession of a healthy larynx, singing can not be thought of. Comparative anatomy and physiology as well as experimental physiology have been of the greatest importance in solving the difficult problems of laryngo-rhino-otology. At every step the specialist whose mind is open was reminded of the close connection of his limited field of achievement with the other branches of medical art and science. No good could be done without an intimate knowledge of anatomy, physiology and pathology; and he must understand the healthy condition to recognize pathological changes.

Bacteriology stands in close relationship with our specialties, and internal medicine was closely connected with them, whilst there was, needless to say, a number of local diseases strictly limited to these organs; in another large and important number, the affection for which the aid of the specialist was sought was only part and parcel of a sys-

temic disease, and it would seem high time that both the public and the enthusiastic specialist should come to understand that in such cases not so much local as constitutional treatment was indicated. He spoke of the brilliant results of thyrectomy in the early stages of laryngeal cancer as well as the surgical treatment of nasal deviation, removal of foreign bodies, etc.

There were the infectious diseases of childhood, in the course of which complications on the part of the ears, the throat and the nose played a large rôle. Government and public health officers have given considerable attention to this condition. Dr. Ziem had called attention to the importance of the connection of ophthalmology with rhinology.

Eruptions on the mucous membranes of the pharynx, nose and larynx might precede or accompany analogous skin lesions. Lupus, herpes, pemphigus and lichen sometimes appeared, first in the parts entrusted to the care of the nose, throat and ear specialists. In numerous affections of the central nervous system laryngology was of the greatest importance for neurology. Neuroses of the olfactory nerve not rarely accompanied important intracranial affections. Anosmia might occur in hysteria, basilar meningitis and locomotor ataxia, and parosmia might be met with in epilepsy, hysteria, hypochondriasis, or might precede mental disturbances of an even graver character. Auditory hallucinations might accompany or even usher in different forms of insanity.

#### THERAPEUTICS AND PHARMACOLOGY.

On Saturday this section met and was presided over by Dr. Hobart R. Hare, of Philadelphia. A memoir entitled, Problems of Therapeutics, was presented by Sir Lauder Brunton, of London, who felt that Hogarth's picture of "The Good Samaritan" illustrated the two great problems of therapeutics: 1, How to relieve pain, and, 2, how to restore health. The principal object of therapeutics was the restoration of function. As an art therapeutics was quite simple but as a science it was the most difficult, since it required a knowledge of physiology, pathology, pharmacology, physics, chemistry and other sciences on which physiology, pharmacology and pathology were based; it also required the power to recognize the nature of physiological changes and the ability to apply the proper remedy and thus secure the desired result. One of the great problems of therapeutics was to

defend the body from the invasions of microbes and to apply drugs that would destroy the latter. In Hogarth's illustration asepsis is represented by the dog, antiseptis by the man. The art of therapeutics consisted in the discovery and administration of drugs that would not only destroy micro organisms but produce the least destruction to the body cells. Asepsis was considered to be one of Nature's methods of defense. Nature employed antiseptics, as illustrated by the fact that there was an antiseptic substance in the milk of the cow before drawn from the udder. Another problem of therapeutics was the production of effective sera—serum which would render the patient immune against bacteria without injury to the body. To produce immunity nothing more was required than to extend to the cells themselves that protection that was possessed by the intestines themselves against the poisons in food in the process of digestion. Reference was made to the expression of Sir William Ramsey, wherein he stated that possibly some solution of radium might be, if taken internally, injurious to the cancer cells while normal cells would remain unaffected. Relative to diet, he stated that there was a sad want of knowledge on which to base practical rules. The very highest aim of therapeutics was to remove pain, maintain health and prolong life without altering the natural conditions or individual cell environment.

Professor Oscar Liebreich, of the University of Berlin, gave a short address on the Relation of Therapeutics to other Sciences, and stated that a rational system of therapeutics only became possible after the physiology of the blood was fully understood. The essential basis for scientific therapeutics was a thorough understanding of the metabolism of the organism; for this knowledge laboratory experiments outside of the human body afforded little or no explanation. Simply because the past century had been renowned for the discovery of the causes of disease that did not advance a method of curing these affections. It was admitted, however, that it was first necessary to determine the cause of the trouble—it then remained to secure the proper remedy.

In 1804 Sertürner recognized the importance of morphin. In 1809 nicotin was discovered by Vanquelin; quinin in 1811, strychnin in 1818. In 1828 Wöhler observed the formation of urea in a substance obtained outside of the system.

The influence of pathological anatomy on therapeutics belongs



entirely to the Nineteenth century. To John Hunter, in England, and Bichat, in France, belong the credit of freeing pathological anatomy from the brainless descriptive scientists and forming it into the necessary basis for every form of progress in therapeutics.

Dr. G. A. Matthews, of the University of Chicago, addressed the Congress on The Influence of Calcium in Preventing Muscular Spasm, in which he reported a series of experiments indicating that a solution of barium chlorid applied to the intestines caused muscular contraction, it increased the blood pressure as quickly as was produced by adrenalin and nearly as quickly as digitalis. With the fall came death. By adding calcium the muscular spasms were prevented. The spasms of strychnin as well as those due to tetanus were prevented by calcium. He found that calcium allayed the intensity of the symptoms of tetanus and in some cases recovery ensued, though he would not be sure that calcium produced the cure. Positive conclusions could not be drawn because his experiments had been too few; he was confident, however, that calcium did away with the symptoms of barium poisoning and that it allayed spasms due to the alkaloidal or bacterial toxins.

#### PHYSIOLOGY.

Dr. S. J. Meltzer, of New York, presided and delivered an address entitled The Domain of Physiology and its Relation to Medicine, in which he regarded physiology as of medical parentage. Physiology manifested a longing for a reduction to physics and chemistry. All natural phenomena impressed us in two ways—as matter and as force. Phenomena were either inanimate or animate. The study of the forces, the energies or the functions of living matter were the proper domain of physiology. He contended that physiology was an independent science with a clear outline of its domain, but it ought to direct its declaration of independence not only toward medicine but also toward such sciences as physics and chemistry. The contact of a science with life and its actual necessities worked on the one hand as a stimulus to investigation, and on the other as a corrective against an indulgence in mere hobbies. Physiology could learn from morphology that a special attention to the human being did not necessarily lead to neglect of the uniform study of the entire animal kingdom. The laws which physiology established must be capable of covering the functional phenomena in all conditions of life.

The observation of Bouchard, Lancereaux and others had led to



the discovery by two medical men that the complete removal of the pancreas in dogs led to diabetes. Physiologists have done little toward bringing about these results. Physicists were only too glad to meet exceptions, the physiologists ran away from them. Animal experimentation was the essential way of developing physiology. The actual disturbance in most cases of disease was primarily of a functional character but the essential part of the present knowledge in medicine was morphologic in character.

Chemistry had taken a powerful hand in the studies of physiology and pathology and had attained brilliant results. What was now termed general pathology, or even pathologic physiology, consisted, in the first place, of a collection of histologic, bacteriologic and chemic facts of a general but essentially of a morphologic nature, including at the same time the affections of a few well-established physiologic facts to pathology and a few results from direct experimentation in pathology.

In the entire section of diseases of the respiratory tract, according to our present knowledge, physiology had hardly any share. He pleaded for a physiology which, like physics, would be only too glad to meet many exceptions in order that all the rules by which the energies of all grades of living phenomena were graded might be perfectly understood.

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## EDITORIAL.

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### Annual Review.

In this summary of the more important findings recorded in the current medical literature for 1904, we have attempted to indicate the lines of thought that have commanded the attention of our foremost investigators and observers throughout the entire civilized world. That preventive medicine has a most brilliant future there can be no doubt. That tuberculosis, tetanus, smallpox, and the various contagious diseases can be, to a large degree, prevented all agree.

The epidemics of smallpox simply proves the absolute ignorance, of the antivaccinationists. The relationship between sleeping sickness trypanosomiasis and splenic anemia has been quite carefully consid-

ered of late and much light thrown upon the subject. Serumtherapy has not been satisfactorily disposed of, but valuable findings have been noted.

Tuberculosis.—There can be no question that preventive medicine can accomplish marvelous results in this field and there is absolutely no reason why every known prophylactic measure should not be carefully carried out. Koch's,<sup>1</sup> assertion continues to call forth extensive research and thorough reports. Kitasato<sup>2</sup> has joined the ranks of Koch and calls attention to the fact that previous to the importation of cattle into Japan, the cattle of Japan were free from tuberculosis and yet even though the Japanese children drank very little milk they frequently suffered from tuberculosis. He does not agree with von Behring's theory that the bacilli gain access through the intestinal canal during early life. The Royal Commission,<sup>3</sup> however, have made a preliminary report calling attention to the fact that their findings controvert Koch's hypothesis. The Commission advise protection of the milk supply. Raw<sup>4</sup> examined 3000 patients and found that it was rare to find a case of phthisis pulmonalis under the age of 12 years, while tubercular joints, enlarged glands, abdominal tuberculosis with tabes mesenterica were essentially diseases of childhood. He considered these latter as of bovine origin. Of 300 cases of tabes mesenterica noted by him, not one occurred in a child that had been reared strictly on the breast. Raw is confident that young children are especially susceptible to bovine tuberculosis. Ravenal<sup>5</sup> found the bovine tubercle bacilli in the intestinal tract of children and regards Koch's theory as untenable. Dorset<sup>6</sup> considers human and bovine tubercle bacilli identical but of different virulence. Westenhaeffer<sup>7</sup> concurs in this view. Wolbach and Ernst<sup>8</sup> do not find any difference in the disease processes caused by human and that caused by bovine tubercle bacilli. Szekely,<sup>9</sup> Heller,<sup>10</sup> and many other competent investigators—both domestic and foreign consider the evidence overwhelmingly in favor of prophylactic measures against bovine infection. Schendler<sup>11</sup> reported a typical case of tuberculosis of the skin occurring in a butcher who had cut his hand and then handled tuberculous meats. The tuberculin test produced a marked local inflammatory reaction and the enlarged glands, which were excised, showed characteristic giant cell tubercles. Jensen and Fibiger<sup>12</sup> succeeded in inoculating calves with human tubercle bacilli thus verifying von Behring's findings. Maragliano<sup>13</sup> states that vaccination against tuberculosis is a

present-day fact. He has also perfected a serum by means of which he has been able to immunize rabbits against virulent cultures of tubercle bacilli. The serum has been found to contain antitoxins and antibodies in conspicuous amounts. Maragliano<sup>14</sup> practically concurs with the findings and assertions of von Behring. We again urge that the milk supply be protected and that every possible prophylactic measure be carefully adhered to in order that tuberculosis may lose its high mortality. Schmorl and Geipel again assert that transmission of tubercle bacilli from mother to child is more common than many have supposed.

**Tuberculin.**—Researches have shown that tuberculin when properly used and under proper conditions is a valuable diagnostic test and is seemingly beneficial. Tinker<sup>15</sup> has employed the test in 400 cases and found it especially efficacious in tubercular joint affections. He experimented with Koch's old tuberculin and considers it harmless when properly administered. Wolbach and Ernst<sup>16</sup> have not found any difference in specificity between tuberculin made from human and that from bovine tubercle bacilli. Rappapost and Loewenstein<sup>17</sup> have succeeded in immunizing 85 cases of tuberculosis with tuberculin; 35 of the 48 cases of closed tuberculosis were cured, while 6 of the 21 cases of open tuberculosis were also cured. Spengler<sup>18</sup> has produced a tuberculin from the Perlsucht bacilli which he claims to be more rapidly effective and the results more complete than obtained by other preparations of tuberculin. Trudeau,<sup>19</sup> and others have concluded that tuberculin was essentially harmless, and seemingly tended to support the claim that the reaction was specific. Baldwin<sup>20</sup> has concluded that the heightened specific resistance or immunity to be obtained by the tuberculin, however short in duration, was the ideal object to be obtained in the therapy of tuberculosis. He strongly favors the idea that the cicatrix seems stronger after the use of tuberculin. Moeller<sup>21</sup> has employed tuberculin, in the form of emulsion of tubercle bacilli, in the treatment of tuberculosis and reported better results than obtained by other methods. Brown<sup>22</sup> has concluded that the patients that have received tuberculin show less tendency toward relapses than those treated by other methods. Kaprolík<sup>23</sup> has employed tuberculin by inhalation and injection, he found the results practically the same; for an accurate diagnosis the two methods should be employed.

**Marmorek's Serum.**—This serum has not been experimented with

sufficiently to determine its true value. Marmorek<sup>24</sup> has employed the serum in quite a few severe cases and considers it to be harmless when carefully employed. He maintains that the serum is capable of curing Pott's disease and other tuberculous affections. Klein and Jacobson<sup>25</sup> report a case cured with the serum. Richer<sup>26</sup> regards Marmorek's serum an antitoxin and believes that it possesses the power of inhibiting the growth of the tubercle bacilli; the latter power is regarded as ephemeral. Latham<sup>27</sup> has employed the serum in 30 cases and concluded that it does no harm and that it produces a specific antitoxic effect. Extreme care must be employed in its administration. Frey<sup>28</sup> has also reported 12 cases in which he used 350 injections. No symptoms of intoxication were noted. He considers it harmless and worthy of further trial.

Throat Infection.—A new form of throat infection has been described by Oliver,<sup>29</sup> due to infection with an organism of the oidium group producing characteristic symptoms. In children the disease is usually acute, while it is generally chronic in adults. The disease begins with pains in the eyes, back and limbs, dysphagia, dry, paroxysmal cough accompanied by an intense hyperemia of the tonsils, uvula and pharyngeal wall, followed by great swelling of the tonsils and uvula. The cervical glands become enlarged and quite tender, and the tonsils become covered with a thin grayish-whitish slime like membrane. Temperature may be normal or elevated, in some cases reaching 103°. A V-shaped membrane soon appears on the posterior pharyngeal wall, becoming thickened and adherent, elevated and of a gray color. The membrane over the tonsils also becomes of a pearl gray color. About this time there appears hard, gray, elevated patches on the tongue, usually near the center; these patches are usually of pin-head size at the beginning but gradually increase in size until about as large as a silver quarter. Forcible removal of these elevated patches induces considerable pain. In most cases, the tonsils, and particularly the tongue, are marked by quite prominent ulcerations; the latter have a punched-out appearance in the tonsils; the ulceration of the tongue may remain for months and is characteristic of the chronic cases. Bacteriologic examination shows numerous round or ovoid bodies from 6 to 8 mm. in diameter and of double contour. They stain very lightly except for a single chromatic granule at the thicker extremity. Attached to the latter is a thread of varying



length. The organism stains by the Gram's method, as well as by all of the basic anilin dyes. The microorganism is especially pathogenic to rabbits, and in the latter animals the clinical picture of the disease can be readily produced. Oliver has reported several cases and regards the discovery as quite important.

Dust Disease.—Another new disease has been discovered recently and commanded attention. Hessler<sup>30</sup> describes it as an acute infectious, endemic disease due to the inhalation of dust contaminated by sputum, and characterized by an irritation of the mucous membrane, vague wandering pains throughout the body, mostly referable to the muscular or ligamentous tissues; lassitude, cephalalgia, nervousness, feverishness and anorexia. The nervous disturbance may be quite marked and the localized pain severe. The disease is most prevalent in the crowded cities but also appears in the country. No pathological lesions have been recognized. The causative factor, according to Hessler, is infected dust. Hessler is confident that one of the most important as well as one of the most neglected problems for study is the influence of dust-contaminated atmosphere in the production of ill health and disease in general. Cases are reported.

Trypanosomiasis.—Extensive researches prove that human trypanosomiasis and sleeping-sickness are one and the same disease. Laveran and Mesnil,<sup>31</sup> Bruce,<sup>32</sup> Manson,<sup>33</sup> Thomas and Dutton,<sup>34</sup> as well as the Royal Society Commission in Uganda have come to the conclusion that morphologically, these trypanosomia could not be said to differ and that their behavior when injected into various animals was also identical. Bruce claims that the so-called "trypanosomia fever" is nothing more than the first stage of sleeping sickness. No evidence has been adduced to prove that any of the lower animals take any part in the spread of the disease. *Glossina Palpatis* is the biting fly that conveys human trypanosomiasis from the sick to the healthy. It is also quite possible that the various species of the genus *Glossina* can convey this trypanosomia. The transmission is regarded as purely mechanical and all the changes in the development of the trypanosoma gambiense take place in the human host. Christy<sup>35</sup> has made extensive studies of the cerebrospinal fluid obtained by lumbar puncture in 104 cases of sleeping-sickness, and concludes that the trypanosomes do not always find their way into the cerebrospinal fluid, but when present they cause an increase in the white cell ele-



ments, and that mania and other head symptoms are more likely to develop if these trypanosomes gain access to the cerebrospinal fluid early in the disease. Manson considers Bruce's evidence principally epidemiological, not pathological. Nabarro agrees with Bruce in the main. Novy, McNeal, and Hare<sup>36</sup> have succeeded in artificially cultivating the trypanosome present in the Phillipine surra, and have confirmed the work of Laveran and Mesnil concerning the non-identity of nagana and the surra of Mauritins. Moore<sup>37</sup> has observed minute spherical bodies periodically swarming in the plasma in animals infected with trypanosomes. These bodies unite in pairs, appearing as comma-shaped organisms with highly refractive extremities; later these bodies invade and penetrate the red blood corpuscles becoming peg-shaped and increasing greatly in size, finally take on a snail-shaped appearance and are extruded into the plasma. This latter is followed by the appearance of large numbers of trypanosomes, and the peculiar movements of the tail-spots being coincident with the presence of free coccoid bodies causes Moore to believe that the reproduction of the trypanosomes to be effected by the extrusion of the tail spot, which, after undergoing development inside the red corpuscles, eventually becomes again free in the plasma wherein it possibly acquires the remaining characteristics of the mature organism. The evidence seems conclusive that sleeping-sickness and trypanosomiasis are produced by the same micro-organism. Greig and Gray<sup>38</sup> find that the trypanosomes are more numerous and frequent in the lymphatic glands than in the blood.

Cunningham's Bodies.—Majors Leishman<sup>39</sup> and Donovan<sup>40</sup> have recently called attention to certain bodies in the blood that were described by Cunningham<sup>41</sup> almost twenty years ago. These bodies have been called the Leishman-Donovan bodies, but it seems as though they are simply a development stage of the trypanosome as recently suggested by Leishman. The symptom complex found in patients whose blood shows the presence of the bodies, is enlarged spleen and liver, anemia, long continued irregular remittent fever, hemorrhage, transitory edema, and frequent complications. Rogers<sup>42, 43</sup> has noted the development of trypanosomes in cultures of these bodies obtained from the spleen of a Chinese subject of the disease. These discoveries are of the utmost importance—especially to the inhabitants of India, South America and Africa. Recently Donovan<sup>44</sup>

regarded these bodies as organisms belonging to the germs *Piroplasma*. Some refuse to accept Rogers' assertions. The corroboration of Rogers' findings would clear up many present unsettled points.

**Pancreatitis.**—Lesions of the pancreas have been carefully studied by Mayo Robson,<sup>45</sup> who has added a mine of information to our scanty knowledge concerning pancreatic affections. Among the exciting causes he considers infection and irritation, while obstruction of the ducts of the gall-bladder, malignant disease of the pancreatic duct, ascarides, and injury are mentioned as predisposing causes. An excess of fat in the stools, especially when associated with the so-called pancreatic diarrhea points to pancreatic disease. In pancreatic diarrhea the stools are large, bulky, soft and greasy. Robson places a great deal of confidence in the pancreatic reaction recently perfected by Cammidge,<sup>46</sup> the technic of which was described by Babler<sup>47</sup> a few weeks ago. Several investigators<sup>48</sup> place no confidence in the reaction. Fever, pain, tenderness, and the presence of enlargement in the pancreatic area are mentioned as important physical signs by Robson. In chronic lesions the fever is absent. Hewlet<sup>49</sup> has developed a technic whereby lipase may be readily demonstrated if present in the urine. He finds lipase usually present in the urine in the acute lesions of the pancreas. Diabetes supervenes when the islands of Langerhans are involved or when the entire gland is destroyed.

**Splenomedullary Leukemia.**—Present literature seems to indicate that Ehrlich's assertion that there is a sharp anatomic distinction between lymphatic and splenomedullary leukemia, is untenable. The true value of Roentgen ray therapy in this affection remains a disputed question. Quite a few cases have been reported in which the temporary results were almost marvelous. It must be admitted that as long as the myelocytes are present the patient can not be regarded as cured. Relapses so frequently occur and these latter are more severe than before treatment was instituted. The rays seems to induce a local change in the spleen, and the formation of toxins possessing an inhibitory action on the manufacture of leucocytes by the bone marrow. Heineke<sup>50</sup> thinks that the destruction of tissue and the consequent action by the phagocytes is an essential feature of Roentgen ray therapy in splenomedullary leukemia. Brown,<sup>51</sup> Cheney,<sup>52</sup> Dunn,<sup>53</sup> Evans,<sup>54</sup> and others have reported apparent cures by Roentgen ray

application, while the results obtained by Abrens,<sup>55</sup> Taylor,<sup>56</sup> and Grosch and Stone<sup>57</sup> were unfavorable. Investigators agree that too much has been expected and that more extensive work must be done before ideal results can be secured. Our knowledge at present concerning xray therapy in this form of leukemia is too meager.

Dechloridation.—Widal's theory<sup>58</sup> seems to possess a very firm foundation. The investigations during the past year corroborate his findings. Castaigne, Vaquez and Louby, Berge and Kozickowsky<sup>59</sup> feel confident that Widal has called attention to a very important fact and they concur with him. At a recent meeting of the Société de l'Internal, Widal<sup>60</sup> again called attention to the subject and stated that the patient could be permitted to partake of any food just so long as the amount of sodium chlorid contained in the latter did not equal the eliminated. This salt restriction is absolutely harmless and the patient with Bright's disease will readily appreciate the improvement. Widal finds that when sodium chlorid is retained in the tissues it attracts water by physical affinity. Reduce the intake and the edema disappears.

Hydrophobia.—About a year ago Negri called attention to the presence of certain bodies which he had discovered in the protoplasm of nerve cells and occasionally in the processes of animals dead of hydrophobia. He described these bodies as round or oval in shape, and varying in size from 4 to 10 microns in diameter and up to 25 microns in length. He found that the size depended, to some extent at least, on the location. He usually found them most abundant in the hippocampus major, pons, spinal ganglia, and Gasserain ganglia. Negri<sup>61</sup> has recently again called attention to these bodies and maintains that they have an etiologic relationship to hydrophobia. These bodies are regarded as protozoa. In 75 animals, mostly dogs, he employed the inoculation test and in 50 of the 52 in which the test was positive he was able to demonstrate the presence of these bodies. In the 25 cases that did not react positive to the test, the bodies were absent. Valpino<sup>62</sup> has demonstrated the presence of these bodies in 40 cases in which the inoculation test was positive. Bertarelli<sup>63</sup> has demonstrated the presence of these bodies in the hippocampus major of the human brain. During the year 1905 it is quite probable that a serum will be presented that will be administered by intraneural or intraspinal injection.

Cecal Colic.—Christomanos<sup>64</sup> distinguishes this affection from appendicitis by the absence, site of location, short duration and rapid recovery. The ingestion of some definite article of diet, added to a natural predisposition are given as the etiology. Intermittent pains are first noted, which gradually become severe and frequent, being localized in the cecal region. Vomiting of stomach contents and later bile tinged mucus develops early. A cord-like process can be palpated in the cecal area. At the expiration of eight to ten hours the attack subsides. Considerable attention has been given recently to the appendix cecum. Sir William MacEwan<sup>65</sup> has found that the appendix possesses a secreting membrane which pours a secretion into the cecum thereby aiding in the process of digestion, etc. The appendix is apparently not a useless structure. It is quite probable that its true function will be determined during the next few years.

Hay Fever.—The pollen theory advocated by Dunbar has gained several admirers during the past year. Somers,<sup>66</sup> Luebbert and Pransnitz<sup>67</sup> have found the serum prepared by Dunbar to be of marked benefit in the treatment of hay fever. Dunbar<sup>68</sup> reasserted that his serum produced the best results of any method yet advanced. In an address before the St. Louis Medical Society he pointed out the remarkable qualities of his serum, and stated that a serum was now being prepared for the American patient. Luebbert and Pransnitz have collected 222 cases of hay fever treated with Dunbar's serum, in 57 per cent of which a cure was effected or relief obtained. The serum is quite expensive and its ingredients have not been divulged. Mohr<sup>69</sup> considers the serum of no value. His experience with it has not been favorable.

Whooping Cough.—Manicatide<sup>70</sup> claims to have discovered the etiology of this affection. He calls it the *Z Bacillus*. It appears as a fine, small extracellular, straight non-motile bacillus with tapering and slightly rounded ends. It takes the anilin stains but not the Gram. It grows readily on agar plates, glycerin agar, gelatin, bouillon and potato. He produced a serum from immunized animals, and in 89 patients ill with pertussis he secured almost marvelous results; 36 of the cases were cured in from one to twenty-nine days while 52 were greatly benefited; 1 patient only received slight or no benefit. In no instance was the serum found to be harmful. Manicatide considers it possible to cure pertussis in from two to twelve days



if the serum be given before the tenth day of the disease. In some cases only one injection was necessary. Manicatide's serum possesses agglutinating properties.

Tetanus.—It has been practically demonstrated that tetanus can be prevented in almost every instance by the thorough and careful cleansing of every wound immediately after the inception of the injury. The foreign body or bodies should be carefully removed from the wound and the patient given a prophylactic injection of antitetanic serum. Elting<sup>71</sup> has pointed out the fact that the toxin of tetanus is transmitted along the axons of the peripheral nerves, and that the best method of combatting the disease after it has appeared, is by intraneural or intraspinal injection of antitetanic serum. Rogers<sup>72</sup> has recently reported a patient so treated with favorable results. Schley<sup>73</sup> considers the intraneural injected re-inforced by the intraspinal, as the greatest advance in the treatment of tetanus. One case is reported by him with recovery. Every practitioner should fully appreciate the fact that every punctured or lacerated wound should be most scrupulously and carefully exposed and cleansed, and the patient given a prophylactic injection of antitetanic serum whenever there is the *least possible chance* that tetanus may develop. The deadly toy pistol will lose much of its deadly effect if the wound inflicted be treated as above advised.

Smallpox.—About a years ago Councilman<sup>74</sup> surprised us by stating that he had succeeded in discovering the parasites of smallpox. He had carefully and thoroughly studied the early stages of the specific lesions of the skin and mucous membrane in smallpox and found certain peculiar, various sized bodies which were very abundant in severe cases. The bodies did not occur as isolated structures but one form followed another by gradual transition, forming a cycle which corresponded with the cycle of development of living things. Councilman has stated that the parasites show two cycles of development—one being represented by the cytoplasmic form and the other by the intraneuclear bodies. Councilman gave a very complete account of his researches recently in which he mentioned that these bodies were the cause of smallpox. The most important and immediate practical results to be obtained from Councilman's<sup>75</sup> findings should be the testing of the quality of vaccinia virus by rabbit inoculation. As a means of diagnosis in obscure cases of variola rabbit inoculation may be o



great importance. Calkins<sup>76</sup> has made extensive investigation and practically corroborates the findings of Councilman. Very recently Howard and Perkins<sup>77</sup> have also confirmed the work of Councilman and Calkins in the main. They recognize a primary and secondary intranuclear stage, but they do not fully concur with Calkins as to the invasion of the nuclei by gammules. It certainly seems absurd for anyone to doubt the efficacy of vaccination. An epidemic of small pox has appeared in Great Britain and compulsory vaccination has been the result. There can be no reason why every civilized nation should not compel every person to be vaccinated.

Arteriosclerosis.—Considerable attention has been given this subject during the past year. Marchand,<sup>73, 79</sup> Stengle,<sup>80</sup> Thayer,<sup>81</sup> Savill,<sup>82</sup> Allbutt,<sup>83</sup> Broadbent,<sup>84</sup> and others have brought forth several points of note. Marchand considered an overfilling or a temporary or permanent increase of the arterial tension to be the essential factor. Broadbent regarded vascular degeneration in the kidneys as due to the toxic substances circulating in the blood, and the high arterial tension induces degenerative changes in the cerebral vessels. Thayer considered overstrain to be the important factor in inducing a hyperplastic thickening of the intima. Overstrain must be considered a very important etiologic factor in this disease. Cabot<sup>85</sup> denied that alcohol played the important factor in the production of arteriosclerosis. Billings<sup>86</sup> considered lead a very important etiologic factor. Thayer<sup>87</sup> called attention to the changes induced by typhoid fever. Stengel regarded change of vigor and of color, various trivial evidences of reduced vitality, and an increasing pallor as among the very early manifestations of arteriosclerosis. Anders<sup>88</sup> advised a less strenuous life for children and adolescents. A more quiet life will assist in preventing the disease. There appears no reason for the hope that a serum may be discovered whereby the disease may be cured. Truncceck's serum has not received much attention, although Enrico de Silvestri<sup>89</sup> has reported favorable results with the serum.

Epidemic Cerebrospinal Meningitis.—Cerebrospinal meningitis in epidemic form has appeared in several parts of the United States during the past year. A specially interesting feature has been the suggested relationship between epidemic cerebrospinal meningitis and croupous pneumonia. Monti<sup>90</sup> has reported a case in which he was able to demonstrate the micrococcus of Weichselbaum. The con-

census of opinion favors the view that this micrococcus is the etiologic factor of the disease. Treatment has been practically unsatisfactory. About 50 per cent succumb.

**Ateleiosis and Progeria.**—Gilford<sup>91</sup> has called attention to two opposite forms of disorders of development. In ateleiosis the development of the body is delayed or arrested; in progeria it is accelerated. In both the interference with the normal course is so extreme and so abrupt as to characterize disease and not a mere variation within the limits of health.

Both make their appearance without apparent cause and give rise to characteristic physiognomies. They are therefore quite distinct from ordinary symptomatic infantilism or senilism. Several cases of both forms are reported.

**Cancer.**—No other subject, save perhaps, tuberculosis, has received so much attention during the past years as carcinoma. Plimmer<sup>92</sup> and Gaylord<sup>93</sup> continue to cling to the parasite theory. Uncooked vegetables are considered by Plimmer as probable sources of infection. He has found certain round bodies present which possess definite staining reaction. Kelling<sup>94</sup> presents the theory that malignant tumors are due to the parasitic action of foreign embryonal cells. Living embryonal cells may gain access to the body in raw or imperfectly cooked eggs, drinking water, or inoculated by the bites of insects. He ground hen's eggs in a mortar and mixed with normal saline solution, then injected into a series of fourteen dogs. At the expiration of a few weeks seven of the animals were killed and five showed malignant tumors present. Kelling holds that aberrant embryonal cells may induce a tumor in the organism of acute origin but that such tumors are benign in nature. It would thus seem that Kelling agrees with the adherents of the parasitic theory and with Cohnheim's followers. Tuffier<sup>95</sup> argues that different kinds of cancer present different kinds of growths, particularly when in different parts of the body. The Cancer Research Fund<sup>96</sup> find that cancer is an irregular and localized manifestation of a process otherwise natural to the life cycle of all organisms. The true cause of cancer still remains an unsolved problem. Relative to heredity, Pearson<sup>97</sup> has carefully studied 3,000 cases and concludes that there is almost no appreciable difference in the incidence in those with and those without known cancerous relatives. He also finds that females are attacked at an earlier

age than males, and that tuberculosis does not predispose to cancer. It is surprising how many women succumb to uterine carcinoma. Sampson<sup>98</sup> has recently plead for an early recognition of the disease and proper and early surgical intervention. A hemorrhagic discharge should always arouse suspicion and occasion prompt investigation. Doyen,<sup>99</sup> of Paris, claims to have perfected a serum from the micrococcus neoformans which latter he consider the specific microbe. He presented a report of the results obtained by him at a meeting of the French Surgical Society last October, but the members desired more tangible proof, and a committee was appointed to investigate. Doyen claims that the toxins of the micrococcus neoformans causes, in cancerous subjects, a reaction similar to that produced by tuberculin in tuberculous patients. Doyen has refused to divulge the composition of his serum until later. The rational treatment at present seems to be to always remove all warts and growths as soon as possible, and to bear in mind the possibility of cancer in all females who complain of a sanguinous discharge. At present, an early diagnosis and prompt surgical intervention are the watchwords.

Radium.—It has been demonstrated that too much has been claimed for radium rays. It is true that such is the case with all new remedies. That these rays produced cures when those of Roentgen failed, all concur. Radium rays can never render useless the Roentgen rays. Pusey<sup>100</sup> has found that the *B* rays produce the beneficial results. He does not believe that the rays will be of much benefit in lesions of more than half-an-inch in thickness, or subcutaneous in situation. Bashford<sup>101</sup> has concluded that the effect of the radium rays is not limited to the cells of malignant tumors. Concerning the effect on deep-seated tumors he concurs with Pusey. Danyez<sup>102</sup> states that the effect is more intense in the young. Lassar<sup>103</sup> obtained good results in the treatment of psoriasis, inflammatory edema, and inflammations of the hands and neck. In cases of inoperable recurrent mammary cancer he has had favorable results. Morton,<sup>104</sup> Scholtz,<sup>105</sup> and others report favorable results in lupus vulgaris, and rodent ulcer. Williams<sup>106</sup> treated 23 cases of epidermal carcinoma and in 11 a cure was effected while the balance showed improvement. Five cases of rodent ulcer were treated; 2 cured and 3 benefited. Einhorn<sup>107</sup> obtained benefit in 6 cases of esophageal carcinoma. In Czerney's clinic<sup>108</sup> no favorable results have been obtained in malignant cases.

MacLeod<sup>109</sup> secured excellent results in cases of small rodent ulcer. In lupus it causes a disappearance of the granuloma and a replacement of it by healthy scar tissue, but the treatment is only practical when the lesion is small. Pfahler<sup>110</sup> called attention to the fact that the rays were capable of producing severe burns. Radium evidences a fluorescence in certain tissues of the eye but does not benefit the blind. Apolent<sup>111</sup> argued that the rays have a specific action on carcinoma cells but this remains an open question. In some cases of carcinoma the effect has not been beneficial.

Roentgen's Discovery.—Experience teaches that these rays are very valuable in lupus vulgaris and superficial carcinomata. Many cases of acne have been reported cured by the rays. That the rays are capable of destroying human life there can be no doubt. Kasabian<sup>112</sup> goes so far as to say that 95 per cent of lupus cases are amenable to the rays. Morris,<sup>113</sup> Childs,<sup>114</sup> Codd,<sup>115</sup> and others consider the rays the best treatment for these cases. Engman<sup>116</sup> has reported excellent results in acne as have Schein and Forök.<sup>117</sup> Bruns<sup>118</sup> concludes that the large majority of carcinomata are not amenable to the rays. He regards cancroids of the skin as alone capable of being completely cured. Perthes<sup>119</sup> has tested 29 cases of carcinoma with the rays and feels that the rays have no action below a depth of 2 or 3 cm. Dennett<sup>120</sup> has cured 6 cases of eczema with the rays. In all other cases of cancer, except the small, superficial epithelioma of the face. Coley<sup>121</sup> would limit the use of the rays to the recurrent and inoperable cases. Cases of rodent ulcers have been reported cured by Dennett, Childs, and others. Bevan's<sup>122</sup> experience convinces him that small, superficial and slowly growing tumors are more yielding to the rays than other forms. Grindon<sup>123</sup> reported cases of Darier's disease, blastomycosis and one of leucoderma in which the rays were of no benefit.

Typhoid Fever. — Wright,<sup>124</sup> Bossenge, Rumpan, Wasserman, and others have presented methods for immunization against typhoid fever, but for practical purposes, save, perhaps, for protecting soldiers, it is quite probable that very little benefit is to be anticipated at present. Wright has made extensive researches along this line in army practice and reports important data. Widal's agglutination test remains very valuable as a diagnostic measure. Brand's method is still considered to be the best method for strengthening the heart, relieving



the nervousness and reducing the temperature in typhoid fever. The attending physician must watch the case with extreme caution and be ever on the alert for symptoms of perforation. As to serum therapy. Maragliano<sup>125</sup> continues to claim most excellent results with his preparation but has not revealed the complete technic of preparation and administration. Einhorn<sup>126</sup> has experimented with the antityphoid serum of Jez and Traval but his supply was too limited to be of any decided practical consequence. If Maragliano has such a wonderful serum it seems more than strange that he keeps the technic such a profound mystery. The diet in typhoid is extremely important. many cases are lost simply because solid food has been given too early during convalescence.

Death.—It is with profound sorrow that we note the death of Edmund Andrews of Chicago, Niels Finsen of Copenhagen, Nathan Smith Davis of Chicago, and Robert Bartholow of Philadelphia—men who have done much to benefit suffering humanity.

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<sup>63</sup>Ibid.  
<sup>64</sup>Zeitsch. f. Klin. Med., 54.  
<sup>65</sup>Brit. M. J., 10/8/04.  
<sup>66</sup>Medicine, 3/04.  
<sup>67</sup>Ber. Klin. Woch., 12.  
<sup>68</sup>St. Louis Med. Rev., 1904.  
<sup>69</sup>Deutscher Med. Woch., 1/21/04.  
<sup>70</sup>Courier of Medicine, 9/04, quoted by Babler.  
<sup>71</sup>Albaca Med. An., 1/04.  
<sup>72</sup>Med. Rec., 1904.  
<sup>73</sup>Ibid., 10/15/04.  
<sup>74</sup>J. A. M. A., 12/04.  
<sup>75</sup> <sup>76</sup>J. M. Res., 2/04.  
<sup>77</sup>Ibid., 10/04.  
<sup>78</sup> <sup>79</sup>Munch. Med. Woch., 17 & 18, 1904.  
<sup>80</sup>Am. Med., 1/2/04.  
<sup>81</sup>J. A. M. A., 9/10/04.  
<sup>82</sup> <sup>83</sup> <sup>84</sup>Lancet, 2/20/04.  
<sup>85</sup> <sup>86</sup> <sup>87</sup> <sup>88</sup>J. A. M. A., 9/17/04.  
<sup>89</sup>Brit. M. J., 9/24/04.  
<sup>90</sup>Am. Med., ab., 7/30/04.  
<sup>91</sup>Brit. M. J., 10/8/04.  
<sup>92</sup>Ibid., 12/12/04.  
<sup>93</sup>Med. Rev. of Rev., 10/29/04.  
<sup>94</sup>Munch. Med. Woch., 2, 24.  
<sup>95</sup>Presse Med., 1, 10.

- <sup>96</sup>Lancet, 2/13/04.
- <sup>97</sup>J. A. M. A., 6/18/04.
- <sup>98</sup>Address Inter. Cong. Arts and Sciences, St. Louis, 1904.
- <sup>99</sup>Lancet, 10/19/04.
- <sup>100</sup>J. A. M. A., 7/16/04.
- <sup>101</sup>Brit. M. J., 7/16/04.
- <sup>102</sup>Semaine Med., 24, 1.
- <sup>103</sup>Ber. Klin. Woch., 41, 20.
- <sup>104</sup>Brit. M. J., 4/23/04.
- <sup>105</sup>Deutscher Med. Woch., 30, 25.
- <sup>106</sup>Med. News, 2/6/04.
- <sup>107</sup>Med. Rec., 7/30/04.
- <sup>108</sup>Deutscher Med. Woch., 30, 13 & 42.
- <sup>109</sup>Brit. M. J., 6/11/04.
- <sup>110</sup>J. A. M. A., 8/18/04.
- <sup>111</sup>Deutscher Med. Woch., 30, 31.
- <sup>112</sup>Penn. M. J., 4/04.
- <sup>113</sup>Lancet, 10/29/04.
- <sup>114</sup>N. Y. M. J., 7/2/09.
- <sup>115</sup>Brit. M. J.
- <sup>116</sup>Interstate M. J., 4/04.
- <sup>117</sup>Wiener Klin. Rem., 17, 27.
- <sup>118</sup>Zher. der Gegen., 45, 1.
- <sup>119</sup>J. A. M. A., 4/30/04.
- <sup>120</sup>Med. Rec., 2/13/04.
- <sup>121</sup>Med. News, 2/6/04.
- <sup>122</sup>J. A. M. A., 1/2/04.
- <sup>123</sup>Courier of Medicine, 6/04.
- <sup>124</sup>Brit. M. J., 1/04.
- <sup>125</sup>Am. Med., 11/5/04.
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## DIAGNOSTICS.

In Charge of W. L. JOHNSON, M.D.

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### On Certain Non-Diphtheritic Membranous Anginas.

Wilson (*St. Paul Medical Journal*, September, 1904) calls attention to—

1. Cases associated with streptococci, the clinical symptoms being, ordinarily, sudden onset with chill, slight fever and a white or grayish false membrane on one tonsil. Occasionally, however, the temperature becomes much elevated, the membrane may spread, involving both tonsils and the uvula, prostration marked and death may occur in two or three days or when recovery takes place the convalescence is apt to be very slow.

2. Cases associated with *diplococcus pneumoniae*. Like the streptococcus it is frequently missed in routine examinations of cultures on Loeffler's blood serum since the medium is unfavorable to the development and recognition of the micro-organism. The clinical symptoms are not unlike those of streptococcic angina or diphtheria.

3. Cases associated with Friedlander's bacillus. Several cases of angina with initial symptoms of dysphagia temperature  $101^{\circ}$  to  $103^{\circ}$  anorexia, depression, intense local inflammation and the final formation of a firmly adherent membrane, have been reported by various observers, as associated with Friedlander's bacillus.

4. Cases associated with spirillum of Vincent. In this there is found a fusiform bacillus. Associated with the bacillus, though not attached to it, are numerous spirals. Clinically the cases, which occur in young adults, are characterized by an onset with headache, chill, temperature of  $101^{\circ}$  to  $103^{\circ}$ , pulse 95 to 100, tonsils congested, swollen and sore with considerable pain on swallowing. After two or three days a marked ulceration with pitting of the tonsils is observed. The ulcer is covered with a thick, grayish-white membrane, which is soft and smooth on the surface but somewhat granular beneath. The margins of the ulcer are red and somewhat raised and the exudate is readily removed with a swab, leaving a raw, angry under surface which bleeds when touched. The ulceration does not, as a rule, spread beyond the tonsils and ordinarily but one tonsil is affected. The cervical glands on the affected side are usually greatly swollen and tender. The patient suffers a good deal from difficulty in swallowing though the disease is not otherwise serious. The prognosis is good in all cases. Of chief importance in the disease is its differentiation from diphtheria and from syphilitic ulcer.

5. Cases associated with *Blastomyces*. Wilson here refers to the reports of Achalme, de Simoni and others in substantiation of this fifth class. From January 1, 1903 to June 1, 1904, yeast organisms have been present in 136 cases examined by the Minnesota State Board of Health Laboratory. In some of the cases the yeast organism was associated with streptococci and in others staphylococci. The onset of cases seen by the writer was sudden; chill, rapid rise of temperature, malaise and considerable prostration. The tonsils were congested, swollen and then rapidly developed a thin, grayish-white membrane. In most of the cases this membrane extended forward

from the tonsils over the anterior faucial pillars and in some cases upward involving the uvula and soft palate. The membrane is somewhat easily removed though with much more difficulty than is thrush. The underlying surface does not bleed, as a rule, though bleeding points are observed, especially over the tonsils. The color has not been observed to be yellowish, but pearly-white or grayish-white. There is considerable adenitis. Antitoxin has no effect. Wilson advises both direct cover-slip or direct slide preparations from the membrane (as well as cultures on the ordinary diphtheria media) to be made on first visit.

### **The Stomach Reflex and Percussion of the Stomach.**

Abrams (*Med. Record*, September 3, 1904). To evoke the stomach reflex, we must first locate the half-moon-shaped space of Traube, which is bounded above and laterally by the contiguous borders of the liver, lung, and spleen. This space yields normally on percussion a tympanitic sound, owing to the presence of the cardiac end of the stomach. Even though the tympany in this area is absent, one may nevertheless, proceed to evoke the stomach reflex.

Next we firmly fix our pleximeter in this region and strike the latter a series of vigorous percussion blows with a percussion hammer and then proceed to percuss the exposed anterior surface of the stomach, which will now be found to yield a dull or tympanitically dull sound, and the dull area can, without difficulty, be distinguished from the contiguous atmosphere of tympany. The duration of the reflex varies from one-half to one and one-half minutes.

### **The Differential Diagnosis of Gastric Ulcer.**

Bettman (*Am. Medicine*, October 8, 1904). Acute perforation of the stomach is always announced by sharp, agonizing pain. The patients almost invariably become collapsed, the degree of collapse varying with circumstances. The muscles of the upper part of the abdomen become rigid, and the most exquisite sensitiveness to pressure arises. Vomiting occurs in from 30 per cent to 40 per cent of all cases. After six to ten hours a mild reaction sets in, and the symptoms of diffuse purulent peritonitis gradually replace those of collapse. Pelvic hemocele or the rupture of an extrauterine pregnancy can usually be differentiated by the history of the case; by the localization of symptoms in the hypogastrium rather than in the upper abdominal

segment. Simple hyperchlorhydria is not accompanied by vomiting, never by hematemesis; the epigastrium may be somewhat tender, but the typical pain points are never present. Except in the severest cases the pain in hyperchlorhydria does not begin until one and a half to three hours after ingestion of food, and frequently occurs at night.

Biliary colic is sudden in onset; it begins many hours after a meal, the pain is excruciating, and radiating in character. It is commonly referred to the right hypochondrium. Retching and vomiting afford absolutely no relief, pain continuing long after the stomach is empty. In the intervals between the attacks, digestion may be perfectly normal, and the patient may enjoy perfect health.

### **Appendicitis in Children.**

McCash (*J.A.M.Ass'n*, September 24, 1904) does not think the frequency of appendicitis in children is appreciated by general practitioners. In children, especially those under 10 or 12 years of age, the important symptoms, with the exception of vomiting, are apt to be masked. McCash is convinced that appendicitis in young children differs somewhat from the same disease in the adult. The difference consists in the obscurity of the diagnostic symptoms, and the more insidious progress of the disease. Pain is severe at onset but the uncertainty of its location impairs its value as a diagnostic symptom. Muscular rigidity.—This important sign is often equally absent. If the utmost gentleness and patience are practiced, along with diversion of the child's attention, sometimes this symptom can be elicited, and if certainly found, the diagnosis is at once confirmed. Vomiting.—This is in children probably the most persistent symptom. It at least is the most evident. It is apt to continue in spite of starvation and medication.

The diseases from which, it seems to me, appendicitis in children is especially difficult to differentiate, are gastroenteritis, with the gastric element most predominating, diaphragmatic pleurisy and basal pneumonia. The following points may be of some value. The persistence of vomiting with severe pain for more than twenty-four hours, especially if there be no diarrhea, favors the diagnosis of appendicitis. The existence of high fever probably rather favors gastroenteritis. The blood examination may shed some light on diagnosis.



**Epidemic Polyneuritis.**

We find in *American Medicine*, October 1, 1904, an abstract of Blackall's article in the *Australian Medical Gazette* of July 20, 1904, in which is described this disease, which attacks only children and young adults, and comes on gradually. There is headache, vomiting, pain in the abdomen, particularly in the cecal area; the tongue is coated and the bowels constipated. The temperature may rise to  $102^{\circ}$ ; the pulse is slightly and the breathing considerably accelerated. At this stage it may be mistaken for appendicitis until pressure shows entire absence of muscular rigidity over the site of pain. A day or two later it simulates sub acute rheumatism, but the pain is not localized in the joints. At this time loss of muscle-power begins and soon becomes absolute. The reflexes are lost and the *tache menigeale* appears, better than in many cases of meningitis. The temperature remains up for one to three weeks; the paralysis gradually disappears, but in all the cases seen, certain muscles have not regained their power within two months and the final results can not now be given. There are reasons for regarding the disease as mildly infectious.

**Tetanus Complicating Typhoid Fever.**

We find an abstract (*New Orleans Med. and Surg. Jour.*, September, 1904) pointing to Caussade's experience. On the twentieth day of a typhoid fever case there developed unmistakable signs of tetanus. No hypodermic injection had been given. The case developed typical tetanus, and died on the twenty-sixth day. Cultures in anacrobiose gave characteristic fecaloid odor, and moreover, microscopical and experimental confirmations were made by expert Momont, of Pasteur Institute. It is evident that hereafter the common diagnosis of cerebrospinalmeningitis complicating typhoid fever should need revision.

## REPORTS ON PROGRESS.

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### GYNECOLOGY.

In Charge of GEORGE GELLHORN, M.D., St. Louis.

#### Acute Infectious Diseases and Genital Affections.

A. E. Eriksson (*Hygiea*, 1903; *Rev. Zentr. f. Gyn*, 1904, No. 29) reports the following case of vulvovaginitis caused by the bacillus of diphtheria. A girl, aged 8 years, whose brothers and sisters had recently been ill with diphtheria, complained of pain in urination. This pain became so severe as to necessitate catheterization. Upon examination, the vulva was found swollen, reddened and very sensitive. At the entrance of the vagina there was a thin grayish plaque. There was a scant discharge from the vagina. The following day an angina developed. Typical diphtheria bacilli could be cultured both from the palate and vagina. Treatment with antidiphtheritic serum resulted in recovery.

#### Case of Precocious Menstruation.

C. Wischmann, (*Norsk. Mag. for Lægevid* 1903; *Ibid.*, No. 30). In a girl born September 4, 1889, menstruation first occurred February 24, 1899. During the following sixteen months, twelve menstruations were observed. The child is very strongly developed and shows no signs of rachitis. The mammae are conspicuously large and present distinctly palpable glandular tissue. The hair is abnormally developed upon the mons veneris, around the nipples and the axillæ. No similar cases have been known in the family. Wischmann cites other cases of similar character in literature and calls attention to two points which are of interest to the general practitioner:

1. The prognosis as to the persistence of the menstrual flow is doubtful.
2. The physician must warn the parents that sexual life may soon begin to become manifest so that even in a child of nine years pregnancy may occur.

### Relation of the Appendix to Pelvic Disease.

Reuben Peterson (*Am. Jour. of Obstet.*, July, 1904) bases his views of the relation of the appendix to pelvic disease upon the clinical and microscopic study of 200 cases. He arrives at the following conclusions:

1. Only a little over 50 per cent of appendices removed during the course of operations for pelvic lesions will be found, microscopically, to be normal.

2. The remainder will show forms of acute and chronic inflammation or the result of the former inflammation.

3. The average length of the appendix is between 8 and 9 centimeters. In 107 cases of the present series the average length was 8.25 centimeters.

4. The maximum length of the appendix is found between the ages of 20 and 30 years. After this period the average length of the appendix is less. While this diminution probably is in part due to normal atrophy, in a certain proportion of cases it is influenced by inflammatory changes.

5. Menstrual pain may be due to or enhanced by the presence of an inflamed appendix. The congestion incident to menstruation increases the inflammation and gives rise to attacks of appendiceal colic.

6. It is exceedingly difficult to differentiate between pain due to chronic appendicitis. In the present series of cases a much larger proportion of patients whose appendices were abnormal gave histories of having or having had this pain of doubtful origin.

7. The appendix is adherent twice as frequently in those cases where microscopic examination shows past or present disease. A certain proportion of adherent appendices are, however, perfectly normal, microscopically.

8. Mere shape of the appendix can not serve as an index of its normality or disease. Appendices may be club-shaped, constricted or bent upon themselves and yet be perfectly normal, microscopically.

9. The appendix is the seat of fecal concretions in at least 8 per cent of all cases. Their existence does not denote that the appendix is diseased.

10. Nearly 50 per cent of patients with chronic disease of the appendages show accompanying disease of the appendix.

11. This inflammation may be the result of the direct contact of the appendix with diseased adnexa or infection may travel from the latter to the appendix through the lymphatics connecting the two.

12. In chronic disease of the appendages adhesions of the accompanying appendices are present in nearly 50 per cent of the cases, where microscopic examination shows the latter to be diseased. In a certain proportion of cases, however, although the appendix may be adherent, it is perfectly normal.

13. In chronic disease of the appendages the appendix which is club-shaped, constricted or contains fecal concretions, is not necessarily diseased.

14. In 50 per cent of patients with uterine fibromata there is accompanying disease of the appendix.

15. In 70.9 per cent of patients with ovarian cystomata the accompanying appendices are diseased. The appendix is not infrequently adherent to an ovarian cyst and may even infect the latter.

16. The ordinary median abdominal incision in the class of cases under consideration amply suffices for the removal of the appendix.

17. Such removal should neither increase the mortality nor prolong the convalescence.

18. Since it is impossible for the surgeon, by gross appearances alone, to determine which appendix is diseased and since nearly 50 per cent of appendices where the abdomen is opened for other purpose are found diseased, it is the surgeon's duty in the absence of contraindications to remove the appendix in every such case. Otherwise he will leave behind diseased appendices, which may prove a subsequent source of suffering to the patient.

19. Systematic examination of series of removed appendices show the occasional presence of primary carcinoma in such an early stage that it could not have been detected by inspection at the time of operation. Removal at this early stage means probably a non-recurrence and the saving of life. Even were carcinoma of the appendix not commoner than once out 200 abdominal sections it would still be an argument for the removal of the appendix in every case where the abdomen is opened for other purposes.

H. C. Coe (*New York Med. Jour. and Phila. Jour.*, August 6, 1904), reaches similar conclusions :

1. Appendicitis is a frequent complication of inflammatory diseases of adnexa.

2. In most cases it is secondary to adnexal trouble, a long appendix in contact with, or adherent to, the right tube or ovary being infected by extension through its walls, or through the lymphatics.

3. The inflammation of the appendix is usually of the subacute type.

4. In a small proportion of cases the infection extends from the appendix to an adherent tube or ovary, or cystoma.

5. The symptoms of the associated conditions are usually determined by the more prominent lesion, but these are referable principally to the adnexa.

6. The diagnosis is made from the history, the location of the pain (above, as well as below, the pelvic brim), and the presence of an induration which can be traced from the appendicular region downward into the pelvic.

7. In acute cases, with an extrapelvic mass, the lateral incision is preferable, with subsequent exploration of the pelvis and vaginal drainage if possible. If the abscess is mainly intrapelvic and easily accessible, vaginal section is indicated.

8. In subacute and recurrent cases a median incision is to be selected.

9. The appendix should be removed whenever the abdomen is opened for pelvic disease, provided that it entails no extra risk to the patient.

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## SURGERY.

In Charge of M. G. GORIN, M.D.

### Repair of the Urethra by Transplantation of the Urethra of Animals.

Pringle (*Annals of Surgery*) describes three interesting cases in which this operation was tried, one of the hypospadias, and the other two of complete rupture of the urethra. Rupture of the urethra is a most deplorable accident and taking into consideration the complications that may arise either primarily or secondarily, the operation for its repair is one of the first magnitude. Where the wound is fresh and the tissues are not too much contused repair is comparatively easy and



may be accomplished by bringing the ends of the urethra together by suture; this may be done even in cases where a certain extent of the urethra has been destroyed, on account of the elasticity of the tissues forming the channel. Where suppuration has occurred or where there has been a great destruction of tissue the problem becomes a serious one. Guyon treats such cases by allowing the urethral tissues to regenerate from either end, and passes a soft catheter into the bladder suturing the tissues of the perineum over it. This is allowed to remain *in situ* for about four days and then removed, and the patient allowed to pass the urine in the natural manner. Ingianni, after experimenting upon dogs in the manner suggested by Guyon, concludes :

1. That a longer or shorter urethra can be produced.
2. That both mucus membrane and cavernous tissue can be reproduced, but not muscular tissue.
3. That the production takes place by growth of granulation tissue around the catheter from the ends of the urethra.
4. It takes place faster where there is little post operative inflammatory state.
5. After fifteen to thirty days the new canal shrinks a little but only exceptionally is obliterated.

Another method of treatment is that by grafting the wound with skin or mucus membrane by Thiersch's method, or by transplanting flaps of the same tissue. For this purpose the inner layer of the prepuce or the mucous membrane from the vagina has been used by different operators. In all the cases the author believes the wounds were old ones and claims priority for the use of this method in recent cases, *i.e.*, where the injury was fresh. The urethra of the bullock was chosen on account of the satisfactory diameter, although the urine of herbivora is alkaline in reaction. In the first case a man aged 51 years, suffering from traumatic rupture of the urethra, the entire channel had sloughed from the apex of the prostate to a point five centimeters from the meatus urinarius. For the purpose of transplantation a portion of the penis of a freshly slaughtered bullock was obtained and conveyed to the hospital in a hot sterile salt solution, the urethra was dissected out and the patient's wound prepared, the ends of the urethra being freed so as to enable the operator to suture them to the graft. Thirteen centimeters of the bullock's urethra were thus

transplanted the wound being closed by buried and superficial sutures. Healing took place by first intention with the exception of the junction of the graft with the remaining portion of the penile urethra. Nine teen days after the operation a catheter was easily passed through the length of the implanted urethra into the bladder. The junction of the graft with the penile urethra, however, failed to heal and several subsequent attempts in this direction were unsuccessful. The remainder of the transplanted urethra healed perfectly and remained patulous. A second case similar to the first in a patient, aged 21 years, resulted in an exactly similar way, the wound failing to close at the proximal junction; in this instance, however, the opening was an extremely minute one. A third case of transplantation was performed for the relief of a hypospadias in a boy, aged 14 years, and was entirely successful, although healing was complicated by the fact that the patient was an epileptic.

#### A Review of 556 Cases of Appendicitis.

Deaver (*Pacific Med. Jour.*) presents a series of 556 cases operated on consecutively during the past year, with a mortality of 53 per cent. According to the author the mortality in these cases is directly proportional to the extent of the extra-appendicular involvement, which is in turn due to the duration of the disease and the character of the infection. He divides the cases into three classes for consideration:

1. Those suffering from general or diffused peritonitis.
2. Those in which abscess was present.
3. Cases where the disease was confined to the appendix with stricture, ulceration and sometimes necrosis of the mucous membrane.

General peritonitis is a very fatal condition and in the 16 cases of this description there were 5 deaths, a mortality of 31 per cent. Of the second class there were 183 cases with 22 deaths, a mortality of 12 per cent.

In 6 of this class intestinal obstruction developed; 5 were operated on with 1 death, and 1 died without operation. In 163 cases it was necessary to open the peritoneal cavity in order to reach the abscess. In 20 cases merely an extraperitoneal incision was made; of these 3 died, a mortality of 15 per cent.

To trust to peritoneal absorption is akin to faith cure, in the treatment of intraperitoneal abscesses, and an aseptic scalpel accomplishes

far better results. The treatment of appendicitis is operative, and the practice of waiting for the interval is perilous, not alone from the evil due to accumulating pus, but from the effect such teaching may have not only on the layman but on the medical man also. If immediate operation was universally practiced there would be no necessity to devise means to restrict the spread of infection. In the last class of cases, those in which the disease was limited to the appendix, there was a mortality of 0.8 per cent, 3 deaths in 367 cases. In 173 cases hitherto classified as chronic, there were no deaths. In 194 cases the appendix was swollen, edematous and inflamed, but not perforated, though there were firm adhesions, and organized or soft exudate covering the appendix.

An early operation, preferably in the stage of appendiceal colic is the only rational procedure and is the only treatment that will reduce the mortality in acute appendicitis to insignificant figures. Furthermore, no patient should be permitted to have a second attack of appendicitis no matter how mild the first.

### **Mesosigmoiditis, and its Relations to Recurrent Volvulus of the Sigmoid Flexure.**

According to Reis (*Annals of Surgery*) all cases of pronounced volvulus of the sigmoid died under medical treatment, while under surgical treatment, two-thirds of the cases operated upon have been saved. Volvulus of the sigmoid used formerly to be classed as a form of intestinal obstruction, but lately has been found to be closely connected with a number of pathological changes in the abdominal and pelvic viscera. The symptoms of an affection of the sigmoid before it has reached a critical stage are oftentimes obscure, and unless careful examination is made may be overlooked, and the patient deemed a neurasthenic, as was apparently the case in the following history :

B. M., male, German, aged 43 years, typhoid thirty years ago, rheumatism ten years ago, applied for relief of a pulling down, burning sensation over the sacrum and coccyx, which was only relieved by pushing the anus upward. Appetite good, weight 173 pounds, muscular and well nourished. For the past eight years has had trouble with the bowel. Was operated upon twice for hemorrhoids, in 1892 and 1899, being relieved each time for a period of six months. He suffered from frequent attacks of meteorism, nausea and vomiting re-

lieved after a few days by the passage of large quantities of gas, fecal matter, then watery stools, followed by hard scybala. At times pus and mucus were passed, but never blood. Examination revealed apparently normal condition of lungs, liver, kidneys, spleen, and heart, and palpation and inspection of rectum yielded a negative result, until on examining the rectum high up a thickening of the paraproctic tissues could be made out, and a pear shaped tumor with the small end in the right iliac fossa, the round end extending beyond the median line on the right side. Tympanitic on percussion, and slightly movable. The stomach and intestines were not dilated. On examination under anesthesia the tumor completely disappeared under manipulation and a large amount of gas, liquid feces and mucus were discharged. A diagnosis of chronic inflammatory meso sigmoiditis was made and operation performed. On opening the abdomen the sigmoid immediately appeared in the incision but there was no volvulus, only the white striæ in the mesosigmoid indicative of chronic peritoneal inflammation. The mesosigmoid was of a felt like consistency. Cumol catgut was used to suture the mesosigmoid to the lateral and anterior abdominal walls. The patient made an uninterrupted recovery, the bowel moving naturally a few hours after the operation, and several times a day thereafter.

There has been considerable discussion as to which is the primary affection, mesosigmoiditis or volvulus. It would seem that inasmuch as every carefully recorded case of volvulus has shown mesosigmoiditis, and cases of mesosigmoiditis have been found without volvulus being present, that the former is the primary condition. Microscopical examinations of mesosigmoiditis have been few, but macroscopically analagous conditions appear to those found in inflammatory conditions of the mesoappendix. As to the etiology of these cases Graser has demonstrated in ten out of twenty-eight cases the existence of diverticula following the paths of the blood vessels in their course through the muscular layer, and are covered with epithelium and muscularis mucosæ, and partly by the circular muscular fibers. These diverticula generally lie along the mesenteric border and are favored in their formation by stagnation of feces, and venous stasis in the vessels of the mesentery thereby widening their calibre.

For the relief of this condition various measures have been practiced by different operators. Reidel has dissected out the bands of cicatri-



cial tissue in the mesosigmoid ; Eisenberg and Steintal have resected the sigmoid in the interval. The last measure is only indicated in pronounced shrinking of the mesosigmoid. In the case cited the author adopted the measure suggested by Roux, viz., attaching the mesosigmoid to the anterior and lateral abdominal walls by means of sutures of cumol catgut about one inch from the sigmoid.

### Stone in the Bladder.

Cordier (*Am. Jour. Surg. and Gyn.*) reports a case of stone in the bladder resulting from the passage of a pin from the intestinal canal into the urinary bladder. The patient was a boy aged 16 years, who had been suffering for several years from frequency of urination and vesical tenesmus. Three years ago he suffered from an attack of what was diagnosticated typhoid fever, at which time the chief symptoms were pains in the right inguinal region and tenderness extending to the median line, and from that time has not been entirely free from these complaints. On sounding the bladder a stone was detected, and on operation a calculus the size of a pigeon's egg was removed. On further exploration a second stone was found attached to the fundus of the bladder. It was only with strong traction that this stone was dislodged and removed, when it found to have been attached to a pin the point of which was protruding into the bladder. It was impossible to remove this by traction without doing too much violence to the bladder wall, so the point of the pin was delivered and incision made in the bladder down to the head, which was surrounded by a fecal concretion the size of a filbert.

### The Diagnosis of Typhoid Perforation and its Treatment by Operation.

Under the above title Elsberg (*Med. Record*) presents the results and symptoms observed in fifteen cases of typhoid perforation. The writer's opinion is that every case of perforation should be treated surgically as soon as the diagnosis is made. The main questions to be decided are on what to base the diagnosis of perforation, and indications for operation, and when are we justified in recommending surgical operation when the diagnosis is still in doubt. Peritonitis results so quickly following a perforation that it is often impossible to distinguish between its symptoms and a perforation. Two symptoms are most usually found in perforation, sudden abdominal pain, and free



gas in the abdominal cavity. Sudden pain occurs with a fair degree of frequency in typhoid and the presence of free gas—while pathognomonic—is often almost impossible to determine with certainty. In the majority of cases the diagnosis of perforation is made from the symptoms of an affection of the peritoneum which has been caused by the perforation and not from any symptoms concomitant with and caused by the perforative process. Out of fifteen cases only four were in absolute collapse at the time of laparotomy. In six cases there was marked distention of the abdomen, in eight only moderate, and in one case there was no distention. Diminution of the area of liver dullness occurred in fourteen cases. Abdominal pain is usually most marked on the right side of the abdomen. In six cases all parts of the abdomen were equally tender; in seven tenderness was most marked on the right side, in two the left iliac; free gas in the abdomen could only be conclusively demonstrated in five of the cases, although there was marked decrease in liver dullness in fourteen cases. The usual method of determining free gas is by the presence of movable tympany in the flanks with concomitant changes in the area of liver dullness. The patients are generally turned first on one side and then on the other percussing both flanks in these positions. Moving these patients, however, is a perilous procedure and the author has generally adopted the following expedient: Have an assistant raise the head of the bed very high and percuss the upper and lower parts of the abdomen very carefully, and then perform the same manipulations with the foot of the bed raised and the head low. There was nothing characteristic in the temperature changes in the fifteen cases observed. In one half of the cases leucocytosis between 11,000 and 18,000 was noted, while in the other half there were only 8,000 cells to the cubic millimeter. A diagnosis of perforation could usually be made within four to twelve hours after the appearance of the first suspicious symptom. When the symptoms have been of at least twelve hours duration and the signs and symptoms point more to perforation than anything else, and the patients general condition is steadily growing worse the operation is a justifiable one. If signs of peritonitis are present delay is inexcusable. If the symptoms have existed for more than twenty-four hours and the patient's condition is good, and the diagnosis still in doubt a few hours wait is justifiable.

In ten of the fifteen cases the abdomen contained seropurulent fluid in considerable quantities, and there were no adhesions between

the coils of intestine; in all these cases the operation was done within twenty hours or less from the beginning of the symptoms. In five patients the adhesions were considerable. In these cases the time was 36 to 48 hours after first symptom. This would indicate that adhesions are not formed frequently in the early stages of typhoid perforation. In six cases free gas was found, five of which were demonstrated prior to operation. On opening the abdomen it was found in addition to the actual perforation there were a number of patches that were on the verge of giving way and were sewed over.

Contrary to natural expectation these patients stand operative interference rather well, and if the operation is done quickly often seem to be in better condition at the close than at the beginning of the operation.

In regard to the course of the disease after operation there is usually a drop from a high temperature to normal or nearly so, and afterward a rise, but the course of the fever is broken. A fall of temperature in the first twenty-four hours after operation is a good prognostic symptom, and occurred in four of the five patients that recovered. Abdominal symptoms generally disappear in from twenty-four to forty-eight hours after operation.

Rapidity is a most essential feature in this operation and usually should consume less than twenty minutes. In the four cases of the writer the duration was 11, 18, 14, and 23 minutes. The abdominal incision should usually be made at the outer edge of the right rectus. If there is any doubt that the sutures will hold it is best to anchor the loop of intestine near the wound. It is a good plan to rub a little iodoform powder over the suture line wherever they have been applied to the bowel wall as it hastens the adhesive process. The use of irrigation with isotonic 0.9 per cent saline solution is to be recommended. The smaller the drain inserted the better. In cases where the perforation is walled off from the general abdominal cavity simply open the abscess when found and leave the perforation to take care of itself.

The writer reports three recoveries out of four operations, the fatal case being a child aged 9 years, in extremely bad condition at time of operation.

## BOOK REVIEWS.

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*The Courier of Medicine Company will mail, postpaid, any book reviewed, on receipt of price.*

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### **A Manual of Experimental Physiology.**

For students of medicine. By Winfield S. Hall, Ph.D., M.D. (Leipsic), professor of physiology Northwestern University Medical School for Nurses, etc. With 89 illustrations and 1 colored plate. Lea Brothers & Co., Philadelphia and New York.

The arrangement of chapters in this book is the purpose of its adaptation to the uses of the student at school. The evolution of its method very properly begins with laboratory demonstrations and working lessons in cytology; considering first the yeast cells, the protozoa and green plants of the lowest order. The method gradually progresses, passing step by step through the physiology and histology of muscle and nerve tissue—the circulation of the blood, and respiration, until in its proper place it systematically takes up the study of normal hematology. The physiology of the other systems is then taken up—digestion, absorption, etc. The system has been found a practical and useful one by Professor Hall, for many years the instructor of his students and, therefore, merits a close consideration by all other teachers. The practitioner will find frequent use for a work of this sort, as well as the student.

### **A Manual of Hygiene and Sanitation.**

By Seneca Egbert, M.D., professor of hygiene and dean of the Medico-Chirurgical College of Philadelphia; member of the Academy of Natural Sciences of Philadelphia, etc. Third edition, enlarged and thoroughly revised. Illustrated with 86 engravings. Lea Brothers & Co., Philadelphia and New York.

The impetus shown on all sides during the past year toward a deeper study and better adaptation of physical therapeutics and hygiene, and the responsive interest that is being manifested by the laity, has greatly enhanced the usefulness of our best books on these subjects. Egbert's Hygiene and Sanitation should enjoy the most enviable repute by this time. It instructs in a most concise, methodical and thorough manner, and should be read by every physician. We take great pleasure in recommending it.

### **Compend of Medical Latin.**

Designed expressly for elementary training of the medical student. By W. T. St. Clair, A.M., professor of the Latin languages and literature in the Male High School of Louisville, Ky. Author of "Cesar for Beginners," "Notes to Cesar's Gallic War," etc. Second edition, revised. Price \$1.00. P. Blakiston's Son & Co., Philadelphia.

This little volume is just what the medical student will find of great value. The author presents in a clear and concise outline of medical Latin. The fundamental principles upon which the medical language is based is presented in an excellent and intelligent manner. Each lesson is accompanied by a small vocabulary. The revised edition will meet with a wide circulation since it is more than a mere compend. It will fill a long-felt want. The vocabularies at the end of the volume are quite beneficial.

### **Practical Treatise on Genitourinary Diseases and Syphilis.**

By Robert W. Taylor, M.D., clinical professor of genitourinary diseases in the College of Physicians and Surgeons, New York. Third edition, revised and enlarged. Lea Brothers & Co., Philadelphia. Price, \$5.00.

This edition is very much like its predecessors, being a valuable guide to the student and practitioner. Additions and revisions have been made to keep the work up to the times. We are pleased to see that the author gives scant praise to the many new silver salts recommended in the treatment of gonorrhea. The section on syphilis and its treatment is of exceptional merit.

### **How to Care for the Hair at All Times.**

By Juliet Marion Lee. Published and for sale by the Juliet M. Lee Co., 27 W. 24th street, New York. Price \$1.00.

This is a practical treatise on the hygiene of the hair, written in popular style and intended for the laity, although physicians might derive some benefit by a perusal of this handsome book. If it causes an increased attention to the care of the hair it will be worth its cost.

### **The Houseboat Book.**

The log of a cruise from Chicago to New Orleans. By Dr. William F. Waugh. The Clinic Publishing Co., Chicago. 1904.

This is a doctor's experience concerning a little vacation in a houseboat down the Mississippi River. It will be read with interest and will serve a good purpose in giving hints to others who might venture on such a trip.



**The Perpetual Visiting and Pocket Reference Book.** Including Information in Emergencies from Standard Authors, also the following comprehensive contents: Table of Signs and how to keep Visiting Accounts, Obstetrical Memoranda, Clinical Emergencies, Poisons and Antidotes, Dose Table, Blank leaves for Weekly Visiting List, Memorandum, Nurses Addresses, Clinical Record, Obstetrical Record, Birth Record, Death Record, Vaccination Record, Bills Rendered, Cash Received, Articles Loaned, Money Loaned, Miscellaneous, Calendars for 1904 and 1905. Bound in Morocco, Red edges. Pages 124. Price, 25 cents. The Dios Chemical Company, 2940 Locust street, St. Louis, Mo. 1905.

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#### Announcement.

Of this issue we mail 5,000 extra copies with a view of increasing our subscription, see subscription blank, advertising page 3.

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ORIGINAL CONTRIBUTIONS.

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The Baby Incubators on the "Pike."

A Study of the Care of Premature Infants in Incubator  
Hospitals Erected for Show Purposes.

By JOHN ZAHORSKY, M.D.,

ST. LOUIS, MO.

*(Continued from page 13, January Number).*

III.

THE NURSES.

It is unnecessary to discuss the propriety of having only well-trained nurses to take care of premature infants. When the danger of sepsis to these little ones is considered, especially in an incubator institution, only those trained in the principles of medical and surgical asepsis should be permitted to serve. The wet-nurses should have nothing to do with the incubators or their inmates.

As to the number of nurses necessary, the exigencies of different periods must decide. We had fourteen well-trained nurses. They worked in three shifts, each eight hours long; hence, there were four or five nurses on duty all the time. These nurses cared for twelve to fifteen babies, nearly half of

which were "graduates," that is, babies out of the incubators. It will be seen that each nurse had under her care from three to five babies. As a rule, there was such a division of the work that the nurse having the care of a very delicate infant, which demanded much attention, at the same time supplied the needs of older babies who needed less care.

It is a recognized rule in institutional nursing that the nurses who feed the babies should not handle the napkins or bathe the babies. This rule we did not follow, since rigid asepsis rendered it unnecessary and it was found more satisfactory that individual nurses look after all the wants of the infant.

#### THE TRANSPORTATION OF THE INFANT.

The extreme susceptibility of the premature infant to atmospheric changes in temperature make the problem of heat supply one of the most important in their care. The protection of the newly-born from the loss of heat is so generally recognized that the family physician or midwife usually makes some provision for its prevention. It is a mistake to assume that these babies always die from temperature reduction. In a few instances, when our physician arrived, the premature infant had been kept so warm that its temperature a short time after birth was over 100°.

Recognizing that the prevention of the initial heat-loss is most important the management early made provisions to minimize this danger. An ambulance and driver were provided which could be called upon day or night. A receptacle, in the nature of a small portable incubator, was utilized to keep the baby warm. The house physician and one of the nurses were usually dispatched to get the infant when a telephone message was received. Occasionally, due to a variety of causes, the infant could not be reached for three or four hours, but most commonly our physician, nurse and ambulance reached the premature infant in less than two hours, nevertheless, the number of infants for whom we were asked to send and who had expired on arrival of the ambulance was very large. It is true that after it became generally known that the Incubator Institute was caring for all premature babies free of charge, physicians, midwives and parents would send for the baby ambulance for miscarriages of 4½ to 6 months. Anything that moved was considered a sufficient subject to send to the

incubators. But we gladly made an effort even in the most hopeless cases. One infant died on the way, many others which were in a hopeless prematurity arrived in fair condition to die a few hours later. During the three months of my service we received four infants each weighing less than 900 grams in very good condition, but who died shortly afterward.

As soon as the infant was reached, the rectal temperature was taken and it was quickly examined as to evidence of disease. It was then wrapped in cotton wool and placed into the portable incubator, a description of which follows, for which I am indebted to Dr. Gordon:

#### PORTABLE INCUBATOR.

"This was designed for use in the ambulance and was made of enameled tin with a glass top. It is 12 inches wide, 18 long and 16 inches high. At the bottom is a sliding drawer which is pulled out by means of a handle. This is the bed and is composed of a strong wire netting held in a frame; a thick layer of cotton is put next to the wire netting, next a layer of several hot water bottles, next a still thicker layer of absorbent cotton upon which the baby, well rolled in cotton, lies. A thermometer lies beside the child. About 4 inches of the top is composed of the enameled tin through which are two holes 1 inch in diameter for the exit of air. The rest of the top is composed of a sliding glass door with a handle. The inlet of air was allowed for by opening the bottom drawer a trifle. Around the entire incubator goes an ordinary trunk strap which serves the double purpose of a handle and to hold the drawer and top in place.

In the ambulance the incubator rested not on the floor but on a shelf suspended by springs and straps from the center of the roof of the ambulance. Near the front end of this shelf was an opening 3 inches in diameter; the open end of the sliding drawer was put just over this hole in the shelf, so that there could be a free ingress of air. On a trip the temperature of the incubator was maintained, approximately at 92 to 94°."

The distance which the babies had to be carried was important. A long ride always had a pernicious influence, even when carried in our portable incubator. For example, Henry, gestation 7½ months, weight 1733 grams, was brought six miles at night over very rough, unpaved streets and on arrival

exhibited multitudinous hemorrhages from the skin and mucous membrane.

Quite a large number of premature infants came from places outside of St. Louis. Many times telegrams were received that Mr. — had started with an infant, asking us to meet him at the station, and although the ambulance never failed to be at the station only once out of perhaps six or eight such calls did the baby arrive. Most commonly the infant died after a short time and the parent would stop at the first station and return home.

A few infants were brought to the incubator in fair condition, wrapped in blankets, and during the warm weather such a method is practicable.

We found it inexpedient to encourage physicians outside of St. Louis to send babies to the institute.

#### THE RECTAL TEMPERATURE ON ARRIVAL.

As soon as the infant arrived its rectal temperature was taken and if this was below  $96.5^{\circ}$  a warm bath at  $98^{\circ}$  was given to restore the loss of heat, otherwise it was rubbed with warm oil, dressed and placed in the incubator.

Budin has laid great stress on the prevention of the initial loss of heat, and claims that of infants under 1500 grams with a temperature less than  $32^{\circ}\text{C.}$ , 98 per cent die. Most of our infants arrived in good condition as regards the body temperature. The accompanying Table 1, shows this.

It will be seen that three infants arrived with a temperature above normal; in all three instances the cause of this must have been the overheating of the portable incubator, although one of these had a temperature above normal when taken from home.

From all this I must conclude that the portable incubator should have a temperature of  $90$  to  $94^{\circ}$  for infants under 1800 grams, and  $86$  to  $90^{\circ}$  for infants weighing more than this. Of course, the temperature of the baby when first seen, the thickness of the clothing of the infant and the distance through which it is to be conveyed must all be considered.

#### THE TEMPERATURE OF THE INCUBATOR.

In spite of much that has been written on this subject there is no unanimity as to the temperature at which the incubator should be kept. Heubner, in his recent text-book

states that it has been found that a temperature of 30°C. (86°F.) is the proper temperature for premature infants, but such a general statement is insufficient for practical guidance. No doubt some of the differences in opinion may be attributed to the experience of physicians with infants of different ages. Probably, too, the variable amount of clothing used may partially account for these differences.

Rectal Temperature on Admission.

Name	Weight Grams.	Rectal Temp.	Remarks.
Dederick	852	93.4	Died in one day.
Edward	1932	102.6	Portable Incubator too warm.
Walter	1100	100	Portable Incubator too warm.
Marion	3182	95.4	Asphyxia neonatorum; died in a few hours.
Nickerson	724	88	Brought by father long distance.
Charles	909	95	
Henry	1733	97.6	
Ella	810	95.2	Died in a few hours.
St. Louis	1385	98.4	
J. Henry	1790	101	
Galvin	2456	96.6	
Pearl	1769	97	
Omega	2158	97.6	
Margaret	1783	96.4	

TABLE I.

Finkelstein (*Ther. d. Gegen.*, 1900) recommends 95° for very feeble and puny infants, in ordinary cases he uses 90° as the standard. This is much higher than some authorities. Voorhees claims that 86 to 92° is about correct. Rotch placed one infant, gestation 30 weeks, weight 2850 grams in the incubator at 94° and another weighing 2040 grams in the incubator at 90°.

All these figures, however, are outclassed by Blair (*St. Louis Medical Review*, May 21, 1904) who often starts with a



temperature of  $100^{\circ}$ . He recommends a temperature of  $93$  to  $97^{\circ}$  for infants of 6 or 7 months' gestation. For 8 months' gestation he gives  $88$  to  $95^{\circ}$  as the proper temperature. Even for 9th month he uses as high  $90^{\circ}$ . These figures are certainly higher than those given by most authorities and contrast strikingly with the temperature recommended by Budin and Rothschild.

Before stating the temperature of the incubator approved by Budin, it is well to point out that Monti erroneously declares that Budin keeps all his cases in the incubator at about  $35^{\circ}\text{C}$ . (*Kinderheilkunde*, Vol. III, page 635). This error induced me to try a higher temperature in one or two cases with results not encouraging.

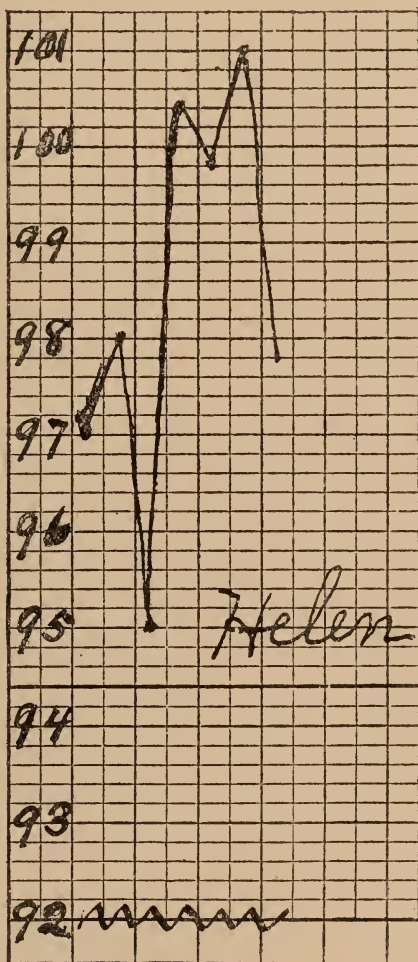
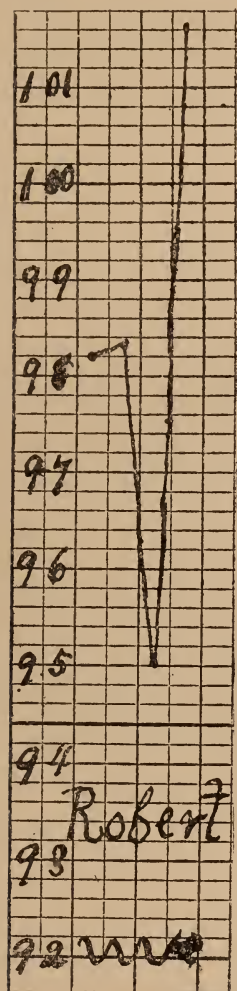
Professor Budin has probably had more experience than any living authority and his results are so superior to others reported that his judgment in regard to any point regarding premature infants must receive the most respectful attention.

Budin (*Le Nourrisson*, 1900, page 18), in answer to the question concerning the proper temperature for the incubator, recites his experience: It had been the custom at the Charite to keep the incubators at a temperature of  $30^{\circ}\text{C}$ . ( $86^{\circ}\text{F}$ .), but he observed that the babies were very restless, cried and perspired easily; he concluded that the temperature was too high. Further experience only corroborated this surmise and he adopted the rule to keep the incubators at a temperature of  $25$  to  $26^{\circ}\text{C}$ . ( $77$  to  $79^{\circ}\text{F}$ .). This was used in nearly every case except in a very few instances when the infant weighed less than 1000 grams. This is so much lower than what is generally given as the proper temperature that one might readily believe it to be an error if it were not repeated. A similar statement is found in the article by Perrett (*Rev. d'Hygiene et de Med. Infant*, Vol. II, No. 2, 1903, page 123) which is incorporated in the recent treatise by Rothschild.

It is obvious that the extremes— $77^{\circ}$  of Budin and  $95^{\circ}$  by Blair, show that this subject needs further investigation, or else we will have to conclude that the premature infant can survive a very wide range of atmospheric temperature. Now, what is the proper temperature?

The answer to this question is by no means as easy as would seem at first sight. It would be almost as difficult to give the proper temperature for the child or adult, and yet it is necessary to reach some sort of conclusion from the conflicting data.

Without attempting to draw any definite figures from the experience of the different authors, it is safe to assume that, partially at least, their different views are based on the practical results obtained in treating infants of different weight and age. Then, too, the bath treatment as practiced by Budin



CHARTS I and 2.

materially alters the danger of heat loss even with the incubator at the low temperature. But to use a uniform temperature of 77 to 79° for all cases, as he recommends, scarcely seems rational, as the metabolic activity in premature infants varies.

In the earlier months of this institution my predecessors used a much higher temperature for the incubators. Probably their practice was based on the experience of Rotch and the recommendations of Blair, whose paper had just appeared. We maintained a lower temperature of the incubators during my service and it may be instructive to study the results more carefully. It is an undisputed axiom that the incubator should be kept no higher than what is necessary for the individual infant. The heat in the incubator must be adjusted to the needs of the individual.

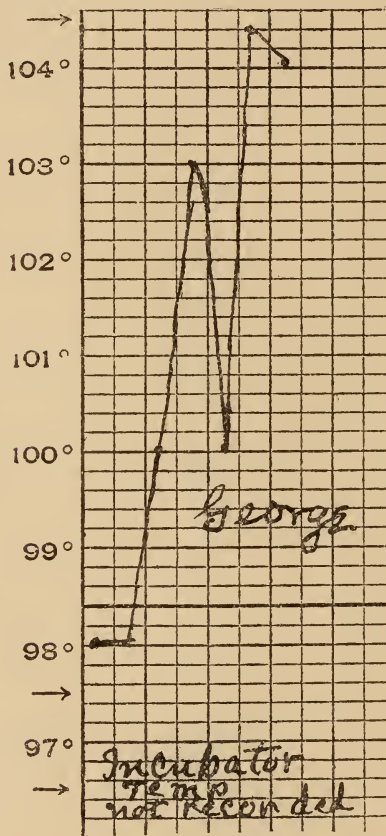


CHART 3.

But how do we ascertain the needs of the infant; or, in other words, what are the criteria on which to base the temperature adjustment?

The final test, of course, is the number of recoveries, but the immediate indications are—1, the rectal temperature; 2,

the warmth of the extremities; 3, cyanosis; 4, loss in weight; 5, restlessness, and 6, perspiration.

### I.—INFANTS WEIGHING LESS THAN 1000 GRAMS.

#### First Series.

Name Gest. Weeks.	Weight Grams.	Age Days.	Incuba- tor Temp.	Extremes Rectal Temp.	Remarks.
Mary 26	900	1	98	102 -104	Lived 20 hours.
Helen 26	1000	1	92	97 - 98	Incubator below 92 Died.
		2	92	95 -100.4	
		3	92	99.8-101	
		4		97.8	
Esther 22	530	1	98	102.4-104	Lived 9 days. Lived 1 day. Infected?
		2	95	99.6-100	
		3	92	97.3- 98	
		4		97	
Ernest 30	900	1	90	103.4	
Doris 26	1000		92	97.8-100.4	
			92	98.4- 99	Died.

TABLE 2.

#### Second Series.

Name Gest. Weeks.	Weight Grams.	Age Days.	Incuba- tor Temp.	Extremes Rectal Temp.	Remarks.
Robert 26	1000	1	90-92	98.2- 98.3	Died.
		2	90-92	95 -101.6	
Charles 26	909	1	90	95	Died.
		2	93	94. - 96.4	
		3	93	94.2- 97	
Ella 20	810	1	93	96	Died.
Dederick 24	852	1	92	95 - 95.4	Died.

TABLE 3.

1. What is the proper rectal temperature? Several authorities (Monti, Budin) expect a subnormal temperature for a few days. Finkelstein warns us that overheating harms the babies and cites some experience. The experience of Rotch and Adriance also reveals the fact that the rectal temperature may readily be forced above normal by an overheated incubator and to the detriment of the infant.



Contrary to this, Blair states that he never permits the rectal temperature of a premature infant to fall below  $99.5^{\circ}$ , and declares that the rectal temperature may be safely maintained at  $100$  to  $102^{\circ}$ .

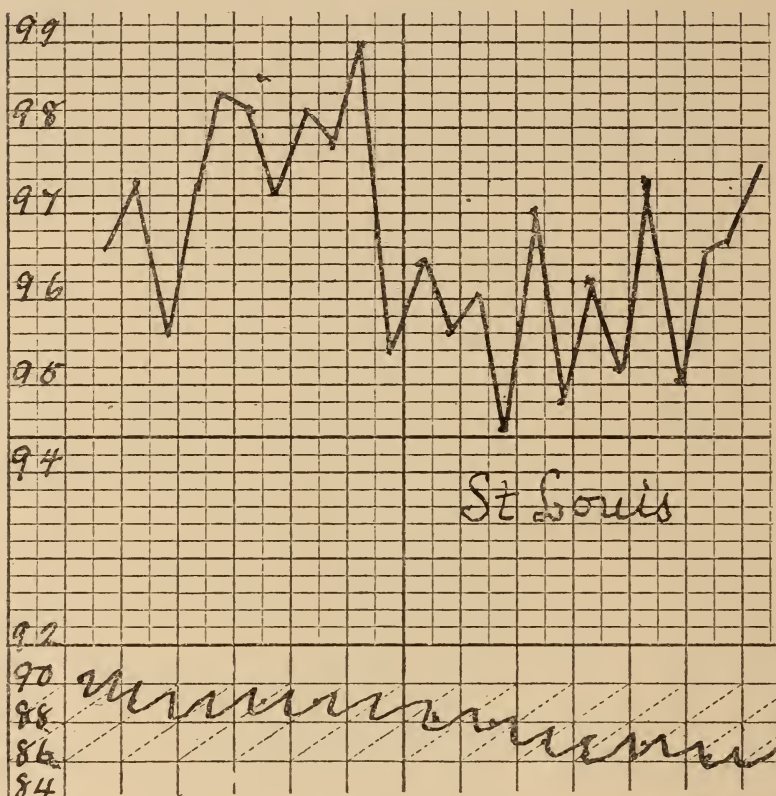


CHART 4.

I tried to keep the rectal temperature between  $97$  and  $99^{\circ}$ . A temperature of over  $100^{\circ}$  or below  $96.5^{\circ}$  indicated that something was wrong. The temperature of the incubator at first was, as seen from the subjoined tables, from  $88$  to  $92^{\circ}$ . I repeat that I had to use a much higher temperature than I desired because the infants were clad very lightly.

For the purpose of proper study I have divided the infants into two series—the first series being under the medical management of my predecessor (May to August) the second series were under my own direction (September—December). The first study is what effect has the temperature of the incubator on the rectal temperature (Tables 2 and 7).



Infants weighing between 1000 and 1500 grams.

		First Series.		
Name Gest. Weeks.	Weight Grams.	Age Days.	Extremes Rectal Temp.	Remarks.
Warden 28	1360	1	100 -103	Lived, 21 days.
		2	98.6-102	
		3	97.6- 99	
		4	98.4-101	
George 28	1300	1	98 -	Lived 5 days.
		2	100 -103	
		3	100 -104.4	
		4	104	
Louise	1360	1	101.4	Died.
		2	102 -103	
Leonore	1340	1	97 - 98.6	Recovered.
		2	98	
		3	98	
		4	97 -100	
Incubator Temperature not recorded.				

TABLE 4.

## Second Series.

Name Gest. Weeks.	Weight Grams.	Age Days.	Incuba- tor Temp.	Extremes Rectal Temp.	Remarks.
St. Louis 28	1385	1	90	96.6-	Arrived- rectal temp. 98.4
		2	89	97.4-95.6	
		3	89	97.3-98.4	
		4	89	98.2-97	
		5	88	98.2-97.8	Indigestion.
		6	88	99 -95.4	
		7	88	96.4-95.4	
		8	88	96 -94.4	
		9	86	97. -94.8	Baby final- ly graduated.
		10	86	96.2-95	
		11	86	97.4-95	
		12	86	96.5-96.5	
		13	86	97.6-96.4	Arrived- rectal temp 100.
		14	86	95.2-96.8	
Walter	1100	1	88	98.2	Lived 3 days.
		2	90	96 -95.6	
		3	92	94.6-99	

TABLE 5.

It will be seen that the higher incubator temperatures of the first series usually resulted in fever in the infant. In the second series the temperatures were kept more normal. In both series all the babies died; the causes of death will be discussed later. In the first series the baby's temperature averaged about  $5^{\circ}$  above the surrounding temperature although there were, no doubt, feeble efforts on the part of the infant to keep its own normal temperature. (Tables 2 and 3).

Infants weighing between 1500 and 2000 grams.

First Series.					
Name Gest. Weeks.	Weight Grams.	Age Days.	Incuba- tor Temp.	Extremes Rectal Temp.	Remarks.
Mildred 30	1900	1	96	102.4-104.4	Cyanosis  Ultimate- ly devel- oped severe atrophy-but lived.
		2		103.4-106	
		3		103.4-102.4	
		4		100 -101	
		5	(?)	98.6-101	
		6		97.4-100	
		7		98 -100.2	
		8		98.2-101	
		9		99 -101	
		10		97.2-100.1	

TABLE 6.

In the second series, with one exception, the difference also is about  $4$  or  $5^{\circ}$ . What feeble metabolism must that be which can not raise its temperature only  $2^{\circ}$  above the surrounding temperature?

From this it would appear that premature babies should be allowed from  $5$  to  $6^{\circ}$ , the difference between its temperature desired and the incubator. Hence the incubator should not be more than  $92^{\circ}$ . If the baby's temperature still falls, more clothing should be used, or warm baths should be given according to the method of Budin.

It was observed that the infants with an elevation of temperature were very restless, nervous and showed marked irritability. Two cases in the first series (not recorded in the table) had convulsions with the high temperature. I believe that these babies may be safely kept at  $90^{\circ}$  if well protected with clothing and a cap (Tables 4 and 5).

It is unfortunate that I find no records of the incubator

temperature in the first series, but I have been assured that the babies were kept very warm (about  $94^{\circ}$ ). Nearly all of them had fever and consequently did not do well.

In the second series, in spite of the fact that the incubators were kept at a much higher temperature than demanded by Budin, the infants' rectal temperature fell below the minimum point permissible ( $97^{\circ}$ ). (Tables 6 and 7).

Second Series.					
Name Gest. Weeks.	Weight Grams.	Age Days.	Incuba- tor Temp.	Extremes Rectal Temp.	Remarks.
Pearl 28	1769	1	94	98	Admitted with temp. of 101.
		2	90	97 - 99.2	
		3	90	100.6-100.4	
		4	88	98.8- 97	
		5	88	98 - 99	
		6	87	99.8- 97.4	
John H.	1790	1	90	99.4- 97.6	
		2	90	99.1- 97	
		3	88	98 - 96	
		4	88	98 - 96.4	
		5	86	96.2- 97.6	
Margaret	1783	6	86	97 - 97	
		1	92	98 -100	
		2	90	96 - 98	
		3	90	99 - 97.6	
		4	90-92	97.2- 97.4	
		5	90-92	97.3- 98.2	
		6	90-92	98 -100	

TABLE 7.

A high temperature of the incubator and its results is exemplified in the case of Mildred of the first series (see chart 5). Owing to the incomplete data I have not tabulated additional cases. This case illustrates very forcibly the harmful effects of fever in the early stages. Even in the second series, in all instances there was a tendency to febrile movement, probably due to overheated incubators. Great precaution to prevent subnormal temperatures and consequent cyanosis suggested the temperatures ( $90-92^{\circ}$ ); yet, with the exception of the first few hours, this was too high, as evidenced by restlessness and perspiration.

Charts 1 to 7 illustrate the relation of the incubator and rectal temperatures in geometric curves. The upper curve gives the rectal temperature twice daily, while the lower zig-zag line illustrates approximately the temperature of the incu-

bator. A complete correspondence is not seen, other factors enter into the augmentation of the temperature, such as the food supply, digestion, etc.

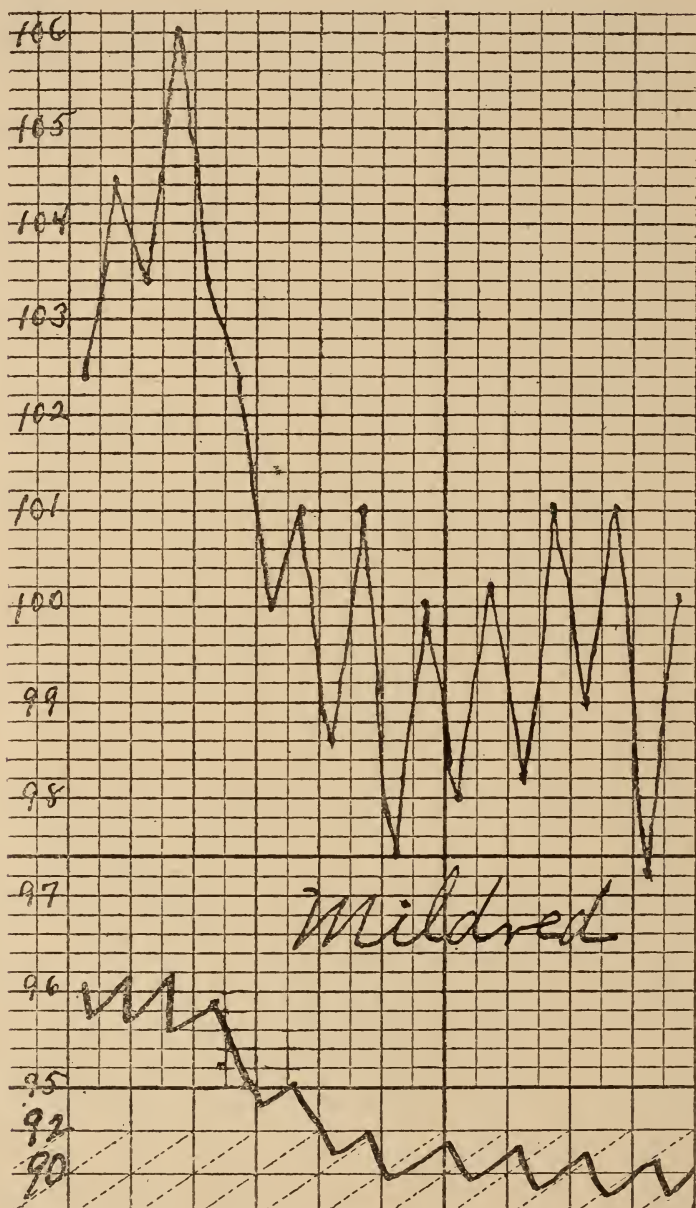
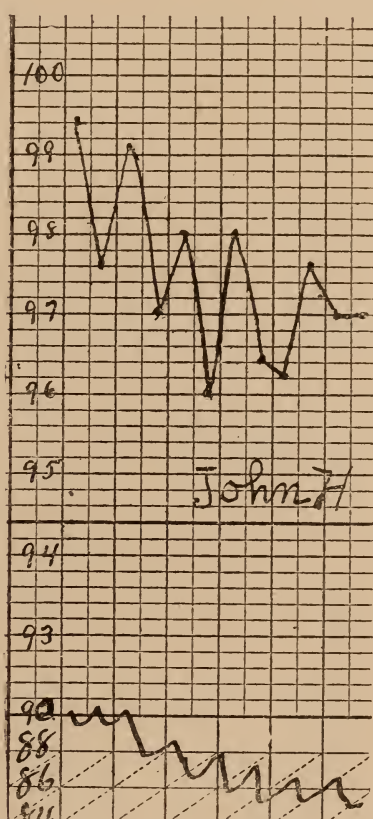
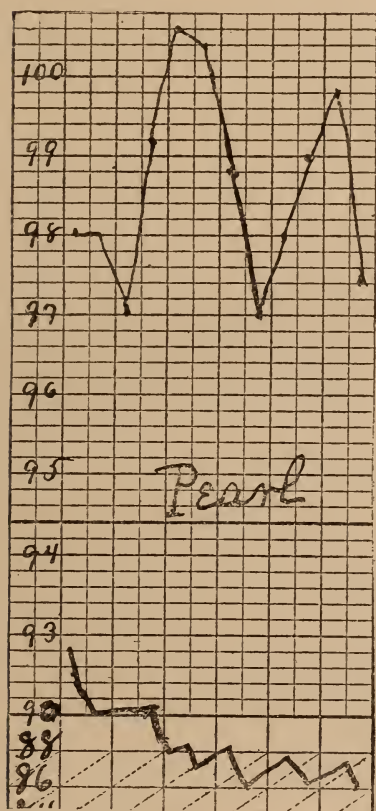


CHART 5.

Judging from my own and the experience of the authorities mentioned above, the following conclusions may be offered:

1. The rectal temperature of the premature infant should be maintained at a temperature of 97 to 99°.

2. If the rectal temperature deviates from this standard it should be considered abnormal and measures taken to restore the normal heat.



CHARTS 6 and 7.

3. Infants weighing less than 1000 grams should at first be placed in a temperature of 90 to 94°. However it is better to wrap the infant in a blanket and put on a cap; then an incubator temperature of 88 to 90° may be sufficient. Subnormal temperatures should be treated by warm baths according to the method of Budin.

4. Infants weighing from 1000 to 1500 grams (6 to 7 months gestation) should be kept at a temperature of 88 to



90°. If little clothing is placed upon them a temperature of 92° will often be necessary.

5. Infants weighing more than 1500 (1500 to 2000 grams) show greater vitality and can safely be kept at 86°, if warmly clad.

6. All infants weighing more than 2000 grams (7 to 9 months gestation) should be warmly clad and kept at a temperature of 80 to 84°.

7. In all cases it is expedient to maintain the incubator temperature at the lowest point which the infant can comfortably bear. Higher temperature predispose to indigestion, poor katabolism and cyanosis.

8. Attacks of cyanosis lead to depression of the body heat and should be treated by warm baths rather than an elevation of the incubator temperature.

Perspiration, sudamina, restlessness, and cutaneous hyperesthesia are indications of too much heat. The thermoregulating apparatus of the infant, however feeble it may be, is severely strained when the temperature is too high. Better results follow the lower temperatures. Excess of heat leads to a higher death-rate.

*(To be Continued.)*

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## Cystitis.

By C. C. THAYER, M.D.,

CLIFTON SPRINGS SANITARIUM, NEW YORK.

IN reading the literature on vesical inflammation one is struck with the superabundance of its classifications.

We read of the rational, etiological, pathological, anatomic, neurotic, clinical, catarrhal, ulcerative, suppurative, diffuse, trigonal, universal, exudative, exfoliative, endocystitis, paracystitis, pericystitis and several other supernumerary and superannuated definitions more confusing than instructive. Clinically and practically, cystitis is an inflammation of a part or whole of the mucosa lining the bladder—microbic in origin and suppurative in character. The *sine qua non* of cystitis is infection. The initiative and predisposing cause being structural change and the provoking and perpetuating cause begin

inoculation with micro-organism—the vesical inflammation being instigated by bacterial infection and determined by circumstances. It may be acute or chronic, but whatever its age or phase, inflammation and bacterial activities declare its presence. The predisposing etiological factors may vary, namely—trauma, residual urine, calculus, gonorrhea, gout, paralysis, etc., and the specific infection may also vary, but these two factors though varied, are ever present and inseparable—physiological opportunity and septic activity. Not always, but under suitable physiological conditions, a child may receive the infection of parotiditis and again of rubeola, so the bladder with conditions favorable imbibes the infection presented, fosters its activity and aids its evolution as in the fission-fungi group microscopically illustrated by Harley and Jaksch or in the Eberth bacilli, beautifully displayed chemically by the Ehrlich's diazo reaction, especially with the Simon's modification, together with other physiological, chemical and microscopical tests of infecting bacilli, whose septic activities constitute cystitis.

The urine is the medium of intelligent diagnosis, not only the presence but the phase of cystitis and also its differential diagnosis from nephritis, ureteritis and urethritis. The urine should be selected with care. Fault here may not prevent the diagnosis but may prevent the diagnosis of the particular phase of cystitis or modify its successful treatments. A previously sterilized urethra and urine taken through a sterilized catheter should be insisted on.

What do we find in *physiological* urine? Normal urine, so-called, as obtained from the urethra unsterilized contains mucus, vesical epithelium, blood, bacteria, pus and albumin, as well as other sediments not essential here, but a physiological element in urine may be increased to a pathological significance. Accurate constituents of bladder urine can not be ascertained from urine voided naturally. Again, physiological urine may be alkaline, more often about two hours after meals when the alkalinity of the blood is increased during the secretion of the gastric juice, and when the diet is vegetable, rich in salts of organic acids, which in the body become oxidized, resulting in alkaline carbonates. Turbid urine when voided is pathological, afterward is not always.

What do we find in *pathological* urine? Cystitis urine contains mucus, epithelium, blood, bacteria, pus and albumin.

Mucus from cystitis is of value in this consideration. After standing it appears to the unaided eye as roundish floccules, the size of a pin's head, and under the microscope as conglomerations of white blood corpuscles (leukocytes). Vesical epithelium in cystitis is usually flat in distinction from polygonal or round epithelium of the kidneys. Blood corpuscles are often seen through the microscope when not otherwise visible. The bacteria in cystitis are found in normal urine unlike only in quantity. The most frequently met, and in this order, are the bacillus coli communis, the staphylococcus pyogenes aureus. Cystitis urine contains pus, hence albumin, hence acetone (product of normal decomposition of albumin). The alkalinity of the urine is the ammono-carbonate and the ammono-magnesium-phosphate, and their presence and distinction is of importance here. The ammono-carbonate furnishes the ammonial odor and precipitates the mucus and pus in a viscid mass. Red litmus suspended over the ammono-carbonate urine is turned blue by the volatile alkali, but it soon turns red again—the amphoteric reaction, and it also increases pain on micturition. The ammono-magnesium-phosphate, a fixed alkali, requires the litmus to be immersed to become blue, but the color remains and the mucus is less sticky. “The alkalinity of the urine,” says ‘Tyson’s Practice,’ page 701, “is produced out of normal urea, the result of the operation of bacteria.” Here, let us inquire—if ammono-carbonate is produced by bacteria on urea, is the pus produced by the operation of the ammono-carbonate on the bladder membrane or by the operation of the bacteria on the bladder membrane? Is the alkalinity a primary or a secondary morphological condition? Would bacteria and urea produce alkalinity in the absence of pus? Can pus be produced in the bladder without abrasion of its epithelial surface? Can cystitis be set up by pathogenic or pyogenic, or by any other bacterial activity in the bladder more readily than in the mouth, nose or stomach so long as the epithelial surface is intact? Does absolute nutrition of the mucosa guarantee absolute immunity? Can there be cystitis without pus, and how produced?

Adversely: Without structural change, no infection; without infection, no inflammation; without inflammation, no pus; without pus, no cystitis.

The diagnosis of cystitis is not difficult except in differentiating it from inflammatory conditions of other sections of the

urinary tract. Dysuria, polyuria and pyuria constitute a symptomatic trinity in cystitis. If these are absent cystitis is absent, yet these symptoms may appear singly in inflammatory conditions of other sections of the urinary tract, and their presence and diagnostic value may be seen in the following table of comparison:

In nephritis dysuria is absent.	In ureteritis dysuria is present, but the pain is referred to the ureter affected.	In urethritis dysuria is present at the time of micturition, the pain soon subsiding.	In cystitis dysuria is present, pain being more just before and also at the time of micturition often extending through the whole lower part of the body, down the legs and in severe cases unceasing.
Polyuria absent.	Polyuria absent.	Polyuria absent.	Polyuria is a marked symptom; in severe cases a perpetual and distressing desire to micturate.
Pyuria present, especially in pyelitis, when present is usually attendant with round epithelium and casts.	Pyuria present, the pus readily settles and is passed at end of micturition, pus corpuscles appearing singly or en masse, because preserved in acid urine.	Pyuria present and passes at first of micturition. The pus corpuscles appearing undegenerated. The pus may be pressed out of the urethra.	Pyuria present and abundant, the pus corpuscles showing chemical effects of urine—a gelatinous mass due to swelled leukocytes in an alkaline urine.

*Other Diagnostic Symptoms.*—In nephritis the urine reaction is strongly acid, also in ureteritis and urethritis. In cystitis, after the first day or two it is alkaline. Vierordt says: "Pus from cystitis is like phosphatic sediment and is attended with phosphatic crystals; in nephritis pus is yellowish and attended with casts." Blood passing from above the bladder is usually of a reddish-brown color, dispersed equally, and with acid reaction, and attended with round casts and epithelium. Purdy (page 177) says: "If on the other hand the blood be derived from the lower urinary tract the color is usually bright, and clots are not infrequently present." Hematuria from the



urethra is usually fresh, precedes the urine and often when there is no flow of urine. Simon says: "Blood corpuscles from the kidneys maintain their normal appearance, but when subject to ammoniacal fermentation, as in cystitis, blood shadows appear." Müller says: "Gas in the urine (hydrothionuria) is the result of bacterial activity."

*Treatment.*—As the pathology of cystitis may be embraced under three heads, namely: Impaired nutrition, structural change, and bacteria of suppuration, the treatment of cystitis is plainly indicated; but, in reverse order, namely, to overcome the infection, to overcome the structural change and to overcome the impaired nutrition. To overcome the infection the microbicides are pre-eminent. The external parts should be frequently washed in tincture of tar soap and hot water, followed with bichlorid, 1/1000. The mouth of the urethra of the female should be guarded with a pledget of absorbent cotton, and of the male with a cot of the same wet in bichlorid, 1/3000. The patient in acute cases should be kept in bed and warm to lessen the determination of blood to the parts and also the tenesmus. The diet should be milk or soft foods only. The bowels should be kept open with saline laxatives, among which potassii bitartras, potassii et sodii tartras, or seidlitz powder are the best—a suitable amount administered in a glassful of hot water several times daily. Soda benzoate, soda salicylate, of each, 5 grains three times daily, urotropin, 10 grains three times daily, are useful for neutralizing the urine. The expectant palliative treatment should be pursued first. Frequent sitz baths, as near 110° as possible, should be tried; hot and dry applications, like salt, bran or the Japanese heater should be applied over the lower abdomen. Hot vaginal and rectal injections are often comforting, and opium suppositories when required. If the symptoms are not ameliorated in two or three days, a soft aseptic catheter should be introduced and the bladder flushed with sterilized water, 105°. As the bladder has no anatomical, but a physiological capacity, the quantity of water used should be gauged by the comfort of the patient. A fountain syringe with a pipette nozzle can readily be attached or detached from the catheter (air being excluded), so that the bladder may be flushed several times without removing the catheter. After rinsing the bladder and before the catheter is removed it should be filled with some antiseptic



or germicide—bichlorid, ranging around 1/2000, is generally the best, also peroxid 4 per cent, urotropin (formin) 5 grains to the ounce hinders the ammoniacal decomposition, and guaiacol carbonate, 20 per cent, in olive oil allays pain and frequency of micturition; useful in typhoid and tubercular infections. "Kelly's Practical Gynecology" recommends a 2 per cent ichthyol solution. For pain, 1 or 2 drams of a 4 per cent cocain solution left in the bladder after irrigation secures rest.

*Vesical Irrigations.*—For reconstructing tissue and restoring nutrition as well as cleansing, nothing serves a better purpose than Seiler's tablets, 2 drams in 1 liter of water, into which is put 1 ounce of a strained infusion of calendula, verbasum, pinus canadensis, balsam of Peru or tolu. The benzoate of soda may be substituted for Seiler's tablets.

Whether the case be acute or chronic the propagating and perpetuating infection is present, which indicates the line of treatment and the prognosis depends on which prevails.

Chronic cystitis occasioned by prolapse or retroversion of the bladder, or by mechanical obstruction, is not hopeful in prognosis except when normal anatomical relations are restored.

Acute cystitis impinging on a chronic form is tedious. If from relapse, morbid growth, or hypertrophied prostate, the urine should be drawn at least twice daily to prevent the evils of residual urine and treated as in the above uncomplicated form of cystitis. If the urethra be closed by pressure a metallic catheter should be introduced and secured by a T-bandage for the female, and a suspensory for the male, and kept intact until the danger from the special pressure be passed, thereby providing for the emptying and treating of the bladder, after which the catheter should be tightly corked.

Two years ago and after vain attempts by several to pass a catheter past a hypertrophied and acutely swollen prostate, and after the part was quite lacerated, a catheter was finally introduced through the stricture and kept in place for sixteen days through which the chronic cystitis was treated several times daily. Since then he has had no trouble. This illustrates many similar cases.

## Bronchiectasis in a Four-Year Old Child.

By J. R. CLEMENS, M.D.,

ST. LOUIS, MO.

WHERE, in a patient, a differential diagnosis between consolidation of lung and empyema; between consolidation (upper portion) and atelectasis (base) in the same lung; between tubercular cavitation and bronchiectasis, has to be made and where many signs were equivocal, the writer thinks the case sufficiently interesting to report.

W. S., aged 4 years and 2 months, was brought to St. John's Clinic in December, 1904, with the following history:

*Mother's Observation.*—Vomiting, two week's duration—the child would eat ravenously and then almost immediately vomit the contents of the stomach. The child's legs ached so that he would not attempt to walk.

*Family History.*—Mother had had three miscarriages. Phthisis on mother's side of family.

*Past History.*—Whooping cough when 3 months old; measles one year ago; late in walking (third year of life). Cough slight except when the patient was angered, then the cough would become violent, a large amount of sputum would gush from the mouth, after which the child would be easier for a time. Marked sweating; feverish almost constantly; fever worse toward night.

*Present Condition.*—Temperature,  $101.5^{\circ}$ ; pulse, 120, regular and strong.

*Inspection.*—Child small for its age, markedly anemic, no wasting, the child being fairly plump; breathing shallow, rapid and easy, resembling that present in lobar pneumonia with extensive consolidation; no cyanosis. Fontanelle widely open and pulsating. Deformities of the thorax, inequality of two sides; pigeon breast, deficiency of movement of the smaller side (left). In the upright sitting posture the child bent to the left with a compensatory lateral curvature, dorsal, with its convexity to the right; the finger tips were clubbed. No apex beat visible in the usual situation. The child was lethargic and easy to examine.

*Palpation.*—Unequal movements of the two sides of the

chest, the left being almost motionless; marked tactile fremitus over the right chest; ribs beaded. Apex beat high up in the left axilla, between the mid-axillary and posterior axillary lines. Spleen and liver enlarged; flesh flabby.

*Percussion.*—Right side: Hyperresonance, front and back. Left side: Absolute dullness except in the following three situations: 1, Apex in front; 2, suprascapular region behind; 3, oval patch of the lung behind (2"x1") with the long axis vertical, extending from the level of the lower third of the scapula downward between it and the spine. The percussion note over 1 and 2 was hyperresonant; over 3 amphoric in character, where a cracked pot sound could be elicited. Over most of the left lung undue resistance was felt by the pleximeter finger.

*Auscultation.*—Over the whole of the *right* lung loud, rough compensatory emphysematous breath sounds, with some coarse, sticky rhonchi. Over the left lung with the exception of the areas 1, 2 and 3 there was suppressed and distant tubular breathing, front and back, for the upper two-thirds of the lung; the lower third gave no breath sounds even when the child struggled and inspired deeply. Over 1 and 2 there was emphysematous breathing, with some coarse rhonchi. Over 3 the breath sounds were cavernous, together with a confusion of other adventitious sounds, fine consonating râles predominating. The heart sounds were good. The cardiac dullness could not be percussed out owing to its abnormal position where its dullness blended with that of the left lung's.

*Blood Examination.* (Unstained).—Many deep pigmented white corpuscles (malaria). No specimens of sputum and urine.

In the differential diagnosis empyema could at once be excluded from the fact that the heart was drawn *toward* the dull area and because on increasing the percussion stroke the note became *duller* instead of resonant.

In the differential diagnosis between the conditions obtaining in the upper two-thirds and the lower third, respectively, of the left lung, absence of breath sounds, even on deep inspiration, indicated collapse at the base.

In the differential diagnosis between ulcerative phthisis with extensive cavitation on the one hand, and bronchiectasis on the other, the points that bulk most prominently in favor of the latter are the age of the child, the situation and size of

the cavity, the traction of the heart up into axilla (Holt's denial to the contrary, notwithstanding), the character of the cough and the state of nutrition of the child. The pyrexia and sweats could not be appealed to as they were pathognomonic of both, and to a third condition actually present—malaria.

The limb pains might be rheumatoid and are often present in chronic bronchiectasis (Gerhardt) or malaria.

The case is interesting from the point of view of the diagnosis, the classical symptoms of bronchiectasis present in so young a child and the multiplicity of its ills—that is, rickets, malaria, bronchiectasis and atelectasis. As regards the diagnosis, traction of the heart in bronchiectasis is generally horizontal, but in the case just narrated the oblique upward direction of traction could be explained on etiological grounds of there being as a primary condition either a pleuropneumonic fibrosis or an interstitial pneumonia with fibrosis, either of which conditions would also explain the collapse present at the left base.

In conclusion, apologies must be made for reporting the case without several examinations of the sputum or observations of the cavity as regards changes in it, day by day, but clinical patients are at best unsatisfactory for complete studies where undue interest on the part of the clinician results not only in resentment on the part of the parents but, a more important point, the disappearance of the child.

[NOTE.—Four days after this report was written the mother brought the child back, saying that after a few doses of quinin the child was greatly improved and simultaneously with the improved condition he began to walk again, and vomiting had ceased. Physical examination revealed that the child was brighter looking; temperature 100°. Bronchiectic cavity filled so that on percussion a dull sound was elicited over it, and on auscultation practical absence of breath sounds.]

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#### **The American Anti-Tuberculosis League,**

For the prevention of Consumption will meet in the Hall of the House of Representatives, Georgia State Capitol, Atlanta, April 17, 18 and 19, 1905.



## LEADING ARTICLES.

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### THE INTERNATIONAL CONGRESS OF ARTS AND SCIENCES.

By EDMUND A. BABLER, M.D., St. Louis.

*(Concluded from page 30, January Number).*

#### PEDIATRICS.

Dr. Thomas Rotch, of Harvard University, presided over this section which convened on Wednesday. Prof. Theodor Escherich, of Vienna, was introduced and presented an interesting monograph.

Dr. Jacobi, of New York, addressed the congress on the History of Pediatrics and its Relation to other Specialties. He stated that more than seven thousand works had been published on pediatrics before 1849. In America pediatrics was at first associated with diseases of women but in 1860 the New York Medical College instituted a separate clinic for the diseases of children. It was about this time that the European colleges gave the subject considerable attention. Considerable literature upon pediatrics was presented by the European investigators which considerably advanced our knowledge, concerning children's diseases.

The growth of pediatrics had been increased since the eighteenth century. At present periodicals devoted to pediatrics existed to the number of five in Germany, two each, in France, Italy and the United States, and Spain one. In 1769, Dr. Armstrong established the first institution for sick children. The Hôpital des enfants malades, the largest hospital in Europe, was established in 1802, by the first French Republic.

Hospitals especially devoted to the diseases of childhood had since then been established throughout the entire civilized world. The beginning of childhood was not the day of birth; evolution went gradually forward from the moment of conception. The structure and nature of the child rendered the laws of heredity distinctly perceptible



An angeoneurosis had been traced through three generations. He asserted that it was not at all necessary that a fully developed disease should be present to evidence morbid heredity. More or less complete resemblances of some one or more of the organs, internal or external, might be an evidence of heredity, affecting the nerve, muscle, bony, or other, tissues, whence obesity, hyperplasia, or other dystrophies might be distinctly inherited, or only a disposition to degeneration might be inherited. Social influences played an important part in the production of degeneracy. Militarism threatened degeneracy, by preventing the proper social relations of the sturdier element of population. This prevention from marriage resulted in an increased prostitution with its attendant venereal diseases. The maintenance of a standing army had many defects. Wars led to the destruction of large numbers of healthy and vigorous men while the inferior grade were left at home to propagate their weakly variety. The etiology of certain diseases, such as, lymphoma, carcinoma, sarcoma, etc., had been carefully studied relative to involution. These studies had seemed to confirm Cohnheim's theory, that they were due to the persistence in an abnormal location of embryonic cells. Pediatrics stood in close relationship to obstetrics, otology, ophthalmology, pedology and dermatology. The vast literature on infanticide was evidence of its relation with forensic medicine.

The chief causes of the excessive infant mortality were, the poverty and illness of the parents; the parental ignorance of hygiene, illegitimacy, artificial feeding, exposure, lack of medical attention, general neglect, and faulty diet. The statistics of Berlin showed that the mortality of babies fed with cows milk was six times greater than the mortality of babies fed with the breast. Chemistry was not physiology. Cows' milk could not be made as good as breast milk. Certified milk or modified milk did make the change. The prevention of congenital malformations was one of the therapeutic problems of the future. In the etiology of congenital malformations should be considered, syphilis, heredity, consanguinity, etc.

In Bulgaria and Hungary, each school had a physician, which was considered a step in the right direction.

Increased mental power went *pari passu* with physical development, greater weight, and increased breathing capacity. This question of infant mortality was of vital interest to the pediatricist, the states-

man and everybody. Psychiatry and pediatrics were closely related. Insanity in children was far more frequent than heretofore believed. Lombroso's doctrine was not to be accepted. The children were considered the proprietors of the universe and their proper education would decide whether the world becomes more righteous or more sinful. He held the physician, and especially the pediatricist, responsible for their proper education and training.

Dr. William P. Northrup, of New York, rendered an excellent address on *How to Feed a Baby Deprived of the Breast*. He dismissed goats', asses', or mares' milk as unworthy of discussion. Cows' milk alone was considered worthy, and a practical basis for infant feeding. In the preparation it was absolutely essential to have a clean, dust-free laboratory, and skilled service, all of which meant considerable cost. The laboratory must be perfect. To produce the best results, the farm and laboratory must be fully equipped. An able manager, an inspector, a chemist, a bacteriologist, etc., were necessary. The product should be just as near human milk as it was possible.

It was true that breast milk varied, and did not always agree with the child. The first problem to solve was how to properly dilute the proteids and retain the fats. By first removing the fats, then diluting the proteids, and by then replacing the removed fats, the problem was solved. The milk laboratory was for the proper fulfilling of prescriptions. He then indicated the value to the physician.

Dr. Rotch, of Boston, called attention to the commercial side of the question. He insisted that the milk laboratories should always be out of the hands of commerce—competent, scientific investigators should be in charge.

Dr. E. W. Saunders, of the Medical Department, Washington University, presented an excellent and interesting memoir on, *Obstructions, Partial and Complete, of the Alimentary Canal in Infancy and Childhood, Considered from the Clinical Point of View*, in which he called attention to the fact that the subject had not received its due attention. One author treated it incidently under the head of atonic dilatation of the stomach due to rickets. Observations showed that non-neoplastic and non-cicatricial stenosis of the pylorus was found at all ages, except at birth and the period immediately thereafter. A majority showed a more or less hypertrophy of the pyloric ring. Some were cases of stenosis, whilst others showed redundant longitudinal folds of the mucous membrane.

The course was fairly uniform and characteristic. A healthy, breast-fed or artificially-fed infant, began within the first few weeks of life to vomit without signs of any general disorder. Change of diet gave no relief. Vomiting became pernicious, and constipation obstinate, the stools were small and mucous, and lacked true fecal odor. Rapid emaciation and exhaustion, with perhaps, subnormal temperature ensued. The vomiting was explosive, sometimes cumulative, and sometimes prompt, depending upon the degree of dilatation of the stomach. Bile generally absent from vomitus.

Examination, after persistence of symptoms for some time, revealed pear-shaped abdomen; empty intestines, full, resonant, epigastrium. The thickened pyloric ring might sometimes be felt. Peristaltic waves might be found during sleep and after taking food, chasing each other from the fundus to the antrum pylori.

The tendency was toward a fatal termination, but there might be marked remission.

Dr. Saunders presented three patients in whom he had made correct diagnosis. The surgical treatment had not been fully agreed upon. As to medical treatment, the amount of food injected was of great importance in some cases. Weaning was generally indicated. As a temporary expedient rectal feeding was often useful. Batten's method should be used more systematically. Peptonized milk and whey have given Dr. Saunders' the best results in feeding. Olive oil had occasionally been of service. Atropin, condurango, and chloral might be tried. In one case morphin was given with great benefit. In estimating the effect of diet, the natural tendency of intermittency of the more severe symptoms should be remembered. As to pathogenesis it was suggested that the condition had not been demonstrated in the stillborn, and the term congenital might after all be found incorrect. The theory that hypertrophy could not be caused by a tonic spasm of the sphincter muscle was untenable. Batten's researches indicated that the tubal feeding was efficacious because it avoided the physiological stimulus to closure of the pylorus. Dr. Saunders considered this subject germane to that of infantile pyloric stenosis.

The differential diagnosis of this condition in infants demanded considerable care. The deceptive stage of anesthesia was very quickly reached, whether it be a case of general peritonitis or strangulation.

The paretic form of ileus was readily induced. He had found that infants were not deterred by pain from screaming incessantly for hours after the onset of an acute obstruction — there was no intermittency in the spasm. Given a screaming baby with a history of vomiting and constipation with retention of gas, the first thing indicated was careful and thorough examination of the abdomen under anesthesia. A rectal examination should never be forgotten.

All hernial openings, testicles, bladder, and chest should also be examined. Temperature per rectum. In the vast majority of cases coming on in the midst of health, perhaps during sleep, with a history of incessant and agonizing pain, the cause would be found to be an intussusception, generally of the ileo cecal or ileo-colic variety. Otitis and lithiasis should be remembered.

The infantile cases never presented the evidences of rythmical pains, whereas, the juvenile cases usually manifested a paroxysmal character from the first. Spontaneous resolution might occur in such cases.

In making a diagnosis too much stress should not be laid upon the finding of a tumor. No heed should be paid to deceptive appearances of amendment when considering the advisability of an operation. Surgical intervention should be early.

In the newly born, atresia of the pylorus, the duodenum, the ileum, and the rectum, might soon give rise to symptoms of obstruction. In infants with umbilical or inguinal hernia, prolonged crying might induce a form of peritonism. There might be no incarceration, and no peritonitis, but meteorism, constipation, and great tenderness of the abdomen. Opiates might alleviate the condition.

Strangulated hernia might give rise to all the symptoms of ileus. An arrested ureteral calculus might do likewise.

Mechanical ileus might be induced by foreign bodies, prrasites, and coprostasis.

Paralytic ileus with hemorrhagic stools might follow an embolism of the mesenteric artery. Dr. Saunders advised the continuance of the term spastic ileus. He considered lead to be the most potent agent for the productive of the condition.

Acute peritonitis, general or local, might be indistinguishable from ileus. In both, the pain would be referred to the umbilical region.

Dr. John Morse presented a memoir on Pneumonia in Infancy,



calling attention to the frequency of this affection in infants, because of the undeveloped condition of their respiratory apparatus. It was admitted, however, that that did not predispose to lobar pneumonia. Late winter and early spring were the seasons when pneumonia was especially common. Full statistics were presented, as were the etiological factors. The symptomatology and treatment received considerable consideration.

#### SECTION OF OPHTHALMOLOGY.

This section was presided over by Dr. G. C. Harlan, of Philadelphia, and convened on Friday.

Dr. Edward Jackson, of Denver, read a monograph entitled, *Relations of Ophthalmology to Other Sciences*, stating that the science of ophthalmology embraced the entire science of optics, while few of the processes of physiology were unconnected with the subject of ocular nutrition. The importance of vision in modern life compelled a study from the true standpoint of ophthalmology. He then spoke of the general laws of respiration and the property of lenses, the maintenance of binocular vision, and the importance of physiologic development in connection with same. The ophthalmoscope had not cleared up the mystery concerning the processes of nutrition as was anticipated. Infections played an important rôle in diseases of the eye. Of non-bacterial inflammations of the eye he referred to retinitis, due to excessive use of the eye, and to eyestrain. Morax, of Paris, and Randolph, of Baltimore, have made extensive studies concerning the action of bacterial toxins on the living eye. Public health was in close relations with ophthalmology.

Children should be properly fitted with glasses whenever the conditions warranted it. Departments of Ophthalmology for the proper training of those into whose hands its application would come, should be established. The results would be found most beneficial.

Dr. Geo. M. Gould, of Philadelphia, read an interesting memoir entitled, *The New Ophthalmology and its Relation to General Medicine, Biology, and Sociology*. He stated that the new ophthalmology considered only those general affections which had their origin in the eye, while the old form continued to remain interested in diseases of the eye only. The new variety being concerned only with the correction of the ametropia which caused eye strain, and with its systematic results; the old were much interested in the inflammatory and surgical



diseases of the eye itself. In other words, the new ophthalmology was seeking to prevent the conditions which were being treated by the old variety. By proper spectacles it was possible to prevent the inflammatory and surgical diseases of the eye due to eye strain. Blepharitis, conjunctivitis, strabismus, myopia, glaucoma, cataract, etc., could be prevented by proper spectacles. Headache, migraine, nervousness, insomnia, dyspepsia, and other nutritive and digestive disorders might be induced by eye strain. A peculiar astigmatism might cause spinal curvature. Spectacles must be adjusted and prescribed by competent and skilled physicians, and not by opticians. Perfect vision was absolutely requisite for present day success. All activity of the higher mammalia depended upon perfect vision. Eye strain was far more frequent and intense than formerly, and unless atoned by scientific spectacles the sufferer was greatly handicapped. Despondency might be due to eye strain.

Modern pessimism came from literary men who suffered from eye strain.

Dr. Gould makes eye strain the predominating evil.

#### GYNECOLOGY.

This section was presided over by Dr. Howard Kelly, of Johns Hopkins University, who introduced the principal speaker, Dr. J. Clarence Webster, of Chicago.

The title of Dr. Webster's address was, Certain Fundamental Problems in Obstetrics and Gynecology. He considered the following: Determination of sex, structure and functions of the ovary, the rôle of the corpus luteum, the antagonism between the maternal organism and fetus, the site of implantation of the ovum, and the functions of the chorion. Dr. Webster referred to the various views held in regard to each of the above sub-headings, indicated the lines of investigation which might be followed and the difficulties awaiting solution, etc. He reviewed the recent advances, made in gynecology and obstetrics. The address was a very important and interesting one.

Dr. John A. Sampson, of Johns Hopkins, presented a monograph entitled, The Importance of an Early Diagnosis in Uterine Carcinoma, in which he stated that the disease was amenable to treatment if operated upon early—that is in its incipency. Of 417 cases of uterine carcinoma received at the Johns Hopkins University, 255 came too late for operative procedure, while of the remaining 162 only twenty per

cent could hope to remain free from the disease after five years. What we needed, was a better education of both the profession and of the laity concerning the early symptoms of carcinoma, in order that the disease might be detected at an early period and operative procedures instituted. The people should know that uterine carcinoma could be cured if properly attacked at an early period.

Hysterectomy does not suffice because of perirenal metastasis to the lymph nodes or lymph spaces in many cases. Attention was called to the work of Professor Winter, of Koenigsburg, who was placing his laboratory at the disposal of the general practitioners in order that they might learn to appreciate and detect the early signs and symptoms of the disease.

Dr. Sampson stated that bleeding in some form was usually the earliest symptoms of uterine carcinoma.

Dr. George Gellhorn, Dr. Ehrenfest, Dr. F. T. Taussig and Dr. C. H. Powell, of St. Louis, discussed the subject and brought out many points of interest and importance, besides emphasizing the essential features of Dr. Sampson's monograph.

At the conclusion of the discussion, Dr. J. Clarence Webster proposed that a committee be appointed to investigate uterine carcinoma for the purpose of helping the profession as well as the laity's enlightenment, and that the committee's report be presented at the Portland Session of the National Organization.

This motion received the hearty approval of every medical man present, and the Chairman, Dr. Kelly, appointed Drs. Sampson, Clark and Taussig as members of such committee.

In conclusion, I desire to thank Dr. E. W. Saunders, Dr. J. Clarence Webster, and others for kindnesses extended in the preparation of this brief abstract, as well as to acknowledge many points of note taken from *American Medicine*, and a few other leading journals.

Before concluding, however, it might not be amiss to note a few brief remarks concerning the medical aspect of the

#### LOUISIANA PURCHASE EXPOSITION.

When the portals of this great university for the unification of knowledge and advancement of every branch of art and science stood ajar, a rare opportunity was given to man of every type to visit an exhibition of the most recent and most beneficial advancements of human industry and skill that had been collected from every part of

the globe. It was a most precious opportunity. That the Universal Exposition was, from a medical aspect, a grand, glorious success there can be no question. The beneficial influences that have accrued and that will continue to accrue from the International Congress of Arts and Science alone would more than repay the Government for every penny expended. Medical science will receive great benefit from such an exposition since we know that it has been the means of educating every woman, man and child who attended, and whatever advances human knowledge and makes man's drugery less severe, aids the advancement of medical science.

An important feature of the Universal Exposition was a demonstration of the wonderful advances made in every branch of arts and science by the Japanese. Japan is rapidly coming to the front as one of the prominent nations of the future. Her products were well displayed in every part of the Exposition.

To Germany, however, must the palm of victory be given for her excellent and instructive medical exhibit. Germany has long been recognized as a great educational center. Her medical display occupied several spacious booths in the Educational Building. The Imperial Board of Health and the German medical teacher demonstrated their achievements. Germany's chief aim was to show how efficiently her universities dealt with the problem of medical instruction. Separate departments of medicine were presented. In the bacteriological department were presented specimens of bacteria, cultures, plates, charts, slides and everything concerning our knowledge of bacteria. Ehrlich's side chain theory received special consideration. The effects of inoculations were demonstrated. The transmission of syphilis from man to monkey illustrated. In this department were also presented tuberculin, antitoxin and the various serums, and their mode of preparation.

In the anatomical department were shown beautiful dissections preserved in formol, alcohol, etc. Photographs, charts, wax and plaster-Paris models were also in abundance.

The pathological department presented exquisite specimens of various lesions; photographs, microphotographs, skiographs, etc., were shown. Sections of specimens were presented in profusion.

In the surgical department were exhibited wax models showing various stages of operative procedures, *e.g.* excision of the larynx,

gastroentrostomy, etc. Drawings, the value of Roentgen rays, charts, etc., gave the student considerable knowledge. A prominent feature was the almost universal employment of the Roentgen rays wherever at all possible. Microscopical sections of various diseased areas were freely presented.

Wax models of various cutaneous affections were quite interesting and attractive features of the German exhibit.

The ultra-microscope and various other scientific instruments were presented and their mode of operation fully demonstrated.

Germany's excellent presentation fully demonstrated the pressing need of a closer relation between the teacher and the student.

Teachings must be more clinical and less didactic. The American universities have also recognized this necessity, but it has only been recently that Dr. Carson and other teachers connected with the Medical Department of Washington University have succeeded in making it possible to place the student in charge of private hospital patients, thereby training the senior students to examine, diagnose and outline the treatment under the direct supervision of the teacher. The student assists in the operative procedures, when such occurs, and continues in charge of such patient until treatment has been discontinued. In other words the senior student gets almost the same grade of work as does the hospital interne in our city institutions, but, of course, of a far less degree. It is certainly a valuable step forward.

Another impressive and enlightening display was that of the common schools and various universities.

The displays were artistic, neat and attractive. St. Louis deserves credit for the high character of its school system. The kindergarten was an attraction of special value and interest. Every teacher who visited and studied the various displays must have reaped a mine of knowledge, and been impressed with the newer methods of teaching our children today.

Whatever advances the education of the laity advances medical as well as every branch of science.

The endowed colleges of the East were well represented, but the statistics showed that the Western institutions were far better attended and equipped.

A large map in the Educational Building called attention to the fact that the highest rate per capita for common schools was being



paid by Colorado who paid \$7.60 per capita. The Southern states pay a very small per capita for schools and have a high percentage of illiterates. Louisiana possesses the greatest number of illiterates.

It is evident that education develops a higher grade of human beings and creates a broader mind than has heretofore been appreciated.

The Electricity Building contained the latest electrical contrivances for lessening the disagreeable features of many occupations, and for the increasing of human comfort. Liebig's laboratory was displayed and created favorable comment. Machinery Hall was filled with time and labor-saving devices, and demonstrations of the advances that have been made in this domain.

The Mines and Metallurgy Building presented the latest and best equipments for mining coal and the various ores, demonstrating the elimination of many of the dangerous and laborious features of mining. Machinery and electricity have been made subserviant to the will of man.

The Government and the Agricultural Buildings convinced the tiller of the soil that he must become more scientific in his planting and protection of his fields and more careful in the gathering of his crops. He must pay more attention to the health of his stock, and secure labor and time saving machinery for his farm. He must learn about the various insects that destroy his fruits and grains, and understand how to successfully destroy them without affecting the grain, etc.

A painting in one of the galleries of the Palace of Fine of Arts, especially attracted my attention and thrilled my very frame. It was entitled, "Todesstunde." It represented the death chamber: A middle aged mother lay dying; two children, perhaps, 8 years of age, were kneeling at her feet; in yonder crib lay a pretty baby sleeping; in the door-way stood a man, whose sorrowful face told more than words. How real, how inspiring, how sad! The artist had created a beautiful piece of work. The more you studied the picture the more real and the more sad it seemed to become. Had I been on the Jury of Award I certainly would have honored the artist who so vividly and artistically produced it.

The visitor to the Phillipine Exhibit, was impressed with the customs and costumes of this savage people, devoid of the blessings of Christianity and its beneficial influences.

The Indian School deserves special mention. Indian children have accomplished wonders. Any one visiting this school and studying their achievements becomes impressed with the fact that the transforming hand of civilization can soothe the savage breast and direct his energies into channels of usefulness.

The Blind School Exhibit presents the grand achievements wrought by the blind. Blind children need no longer be considered a burden. What a wonderful blessing is diligent application.

Taken, all-in-all, the Universal Exposition was of world-wide importance and benefit. It was an epoch-making event and one that inspired each individual with determination and renewed hope. We congratulate the men who contrived it, and we doubly congratulate those who were permitted to attend and study at this great university.

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### EDITORIAL COMMENT.

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#### **The St. Louis Medical Library.**

We are indeed glad to note the fact that the Medical Library has recently moved into its spacious, comfortable, and quiet home at No. 3525 Pine street. During the past year the growth of the Library has been very satisfactory. To Dr. N. B. Carson, the present President, especially, and to the active workers is honor due for the successful outcome. These men have done everything possible to place the Association on a solid and permanent foundation thus insuring the City of St. Louis the finest Medical Library West of the Mississippi. The Library contains hundreds of volumes of the standard medical works and the current medical literature from every part of the civilized world, that has been published during past ten years. Many of our fellow practitioners do not fully appreciate the significance of a good medical library. To the younger members who have an hour or so each day, for a few days to spend in the Library the opportunity is a most beneficial one. We feel very grateful to these men who have made it possible for us to secure access to the vast literature contained in, as well as almost daily received by, the Association. It should be the ambition—as it is the duty, of every physician to become a member of this Association. For \$5.00 a year a membership card will be issued. If

the Library does not contain the literature you seek, it may be procured from the Surgeon-General's Library in Washington. We congratulate the patient workers, and also the physicians of the city on the securing of such an excellent medical library.

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### Medical Colleges and Sanitariums.

Our publishers having received such encouragement of card advertisements from colleges and sanitariums, they have concluded, commencing with this number, to devote a page of cards to each.

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## MEDICAL RESEARCH.

### Review of Progress in Physiology, Physiological Chemistry, and Experimental Medicine.

In Charge of A. S. BLEYER, M.D.

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#### Influence of Alimentation on Fecundity in Birds.

Houssay (*Jour. de Med. et de Chir.*, September 25, 1904) finds that first year hens give 97 eggs in twelve months when fed on cereals, with an aggregate weight of 5360 grams. When submitted to an exclusive animal diet, on the contrary, first year hens gave from 145 to 167 eggs in twelve months, their total weight being from 8674 to 10,270 grams; showing an augmentation of from 150 to 172 per cent eggs and from 161 to 193 per cent in weight of primary quantities.

This remarkable difference is found, however, to change in the second year of the animal diet. It is seen also that the hatching of eggs from hens on strictly meat diet are successful only in the percentage of 17.5.—a very bad percentage.

The observer suggests certain possible deductions, as to the influence of meat diet in the fecundity of women; finding in the above a presumptive cause for sterility in women who are, and have been for many years great meat eaters.

The above data, however interesting, is but a little light added to a subject long since removed from utter darkness. The control of sex in bees and ants was established long ago, as well as in many hymenopterous insects; but there has appeared to our knowledge no well-substantiated demonstration that the least control has been attained in the determination of sex in the higher animals.

Professor Loeb has recently made the astounding statement that this control is now a possibility, and that we are in a position to govern at will the sex of gestation-product in woman.

As stated in an editorial in the *Journal of the American Medical Association* of recent date, the memory of Professor Schenk is still an unpleasant one, and Professor Loeb must expect to meet with a degree of skepticism in the profession.

### **Albumin and Sugar, Normal Constituents of Urine.**

Kleneberger and Oxenius report in *Deut. Archiv f. Kin. Med.*, LXXX, 3 and 4. that the urine from persons in perfect health contains albumin in 58 per cent of those examined. It is not infrequent also to find detritus of kidney substance in such urine. The finding being comparable to the urinary status of afebrile rheumatics. Such urine is considered to be normal.—*J.A.M.A.*

In conjunction with the above, it will be remembered that it was demonstrated by the French observers Laffont and Lombard a year ago, that sugar is likewise a usual constituent of normal urine; its source frequently being simple molecular disintegration or an over-charging of the blood current with glycogen, such an hyperglycemia having its origin in a deficient plasticity of the blood consequent to change in the fibrin molecule.

Such data are important because of the fact that for comparative work in the clinical laboratory our reagents must not be the sensitive ones used by the physiologic chemist, or else our deductions will have to be mathematical and not merely qualitative or even roughly quantitative, as has been the custom.

### **Animal Experimentation With Garlic.**

The essential oil of garlic, which is almost a pure sulphid of allyl, is eliminated largely through the respiratory tract. The beneficial action of garlic upon the inflamed mucosa of the tubes occurs perhaps in this way.

Experimentation carried on chiefly by Carazani has given the above data scientific support. A review of the subject by John Knott is to be found in *American Medicine* for September 24th, under a consideration of the usefulness of garlic in pulmonary tuberculosis and in lupus.

Observations on guinea-pigs proved very interesting, and went to



show that in these animals, a diet containing one gram of garlic a day was sufficient to prevent them from contamination, while living in an atmosphere ridden with the bacilli, while all the controls became badly infected.—*J.A.M.A.*

### Stovaine—A New Anesthetic.

Stovaine is a hydrochlorate of benzoic ether of dimethyl-amidopropanol and is not a general anesthetic. It was prepared synthetically by the French chemist, Fourneau, and has been tested by Reclus.—*Bull. de l' Acad. de Med.*

It is meant to replace cocain and seems to possess the following advantages. It produces anesthesia as promptly and as effectively as cocain both by hypodermic and epidural injection. It is one-half as toxic as cocain (experiments conducted by Billon, Pouchet and others, clinically and on animals). It is far less expensive than cocain.—*J. A.M.A.*

### Goat Milk.

The condemnation of goat milk as an infant food has received an apparently much needed revision, at the hands of Bernard, Barbillion, Boissard, Lesage, Raimondi, Triboulet and others, who have analytically revealed a number of false deductions that have come from the older practitioners and from physiologic chemists generally.

Goat milk is said to be impractically rich in casein—for example, many authors stating that a finding of 40 grams to the liter is not unusual. The dictum because of this fact alone has been to restrict its uses to only a limited class of cases. In contradiction to the above, Barbillion has found the most remarkable variation to exist in different breeds of goats, certain breeds showing a constant percentage almost identical to that found in womens' milk. These breeds, the authors urge, should be isolated and cultivated.

A most important feature lies in the fact that the ferments of goats' milk resemble the ferments of womens' milk much more strikingly than those found in cows' milk; a subject that has been much discussed and with little or no benefit (*vide* COURIER OF MEDICINE, November, 1904,—“The Enzymes of Cows' Milk”), any modification of the last named being a matter of really great difficulty. While in the case of maturation of goats' milk, it has been accomplished with great satisfaction in the *living animal* by intraperitoneal injections of mothers'

milk in the goat; the inoculations being carried on for several months before the effect desired has been obtained. (Barbillion, Triboulet).

There has been established in Paris for the past five years a goat dairy, in which are kept a hundred and twenty animals of the selected breeds, and from whose milk valuable clinical data have been obtained. A case of tuberculosis has never been found among the animal of this dairy.

Goat milk has been used with many advantages, outside its place as an infant food, in many dyspeptic cases, and especially where a milk diet is indicated. It has been found that fermentation by kefir grains produces a kummys of greater value than in the case of their use in cows' milk.—*Jour. de Med. et de Chir.*, May 24, 1904.

### Phosphorus in Therapeutics.

In determining the biological action of phosphorus, Gilbert and Lippmann (*La Presse Med.*) have added greatly to our knowledge of its uses in medicine. In the first place it was found that the use of mineral phosphorus or its salts is wholly irrational. In the human organism mineral phosphorus is found only in the bones and in the excreta, where they represent the detritus resulting from the cleavage of organic phosphorus compounds. Human milk never contains mineral phosphorus. On the other hand practically all of the soft tissues have in them a dynamic and nutritive percentage of organic phosphorus. In the bones they serve a purely mechanical and not a nutritive purpose.

Therapeutically organic phosphorus has a broad field, and no better preparation has been obtained than that of Posternak, who has found in all chlorophyll plants an anhydrous diphosphoric oxymethylenic acid from which he has made a neutral sodium salt and an acid calcium salt. The acid contains almost 22 per cent of phosphorus in organic combination and exists in all cereals and vegetables.

The clinical results obtained have been more rapid and more effectual, and of more constant action than the results obtained by any other phosphorus medication.—*J.A.M.A.*

It is undoubted that phosphorus does contain powerful dynamic and nutritive properties, but it is not very commonly prescribed in current practice, except in combination with other drugs—usually tissues. Any light gained about the individuality of the drug will certainly be gladly received.

## SOCIETY PROCEEDINGS.

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### MEDICAL SOCIETY OF CITY HOSPITAL ALUMNI.

*Meeting of September 1, 1904; Dr. Charles Shattinger,  
President, in the Chair.*

Dr. JOHN YOUNG BROWN presented a patient upon whom he had operated for

**Strangulated Umbilical Hernia. Double Resection of Bowel.  
Anastomosis With Murphy Button. Recovery.**

The patient I present tonight is one which presented a very unusual condition. She was brought into the hospital on March 7, 1904, with a strangulated umbilical hernia. She had had this hernia for fourteen years and during that time had had ten children. She was brought here in a very bad condition. The hernia, which was large, had been strangulated for fourteen hours. The usual efforts—taxis, hot applications, etc., had been applied. Elliptical incisions were made, it being my intention to do the radical operation of Mayo if conditions permitted. On opening the hernial sac I found in the sac a small portion of ileum, the cecum, appendix, ascending colon and transverse colon gangrenous. Primary resection was out of the question, I, therefore, determined to make an artificial anus; this was done by simply incising the cecum, as the gut was adherent to the sac about the ring. I was careful not to loosen the adhesions but split the aponeurosis externally to the sac. The patient was in a wretched condition, and I put her to bed to die. For some mysterious reason she did not die, and the artificial anus worked perfectly. She discharged her fecal matter through this anus for ten weeks, and the question came up of restoring the continuity of the bowel. After a very careful and deliberate examination I did not think it would be wise to attempt an end-to-end anastomosis at the site of the hernia. I concluded to open the abdomen below the umbilicus (she was a very fat woman)

and resect the ileum close up and invaginate the stump and then resect the colon. I also purse stringed the distal end of the colon, leaving these two blind pouches of bowel (illustrating on blackboard), and then I anastomosed the ileum with the sigmoid, leaving her practically without the large bowel except the sigmoid. The anastomosis was made with the Murphy button, reinforced with Lembert sutures. The bowels moved in twenty-four hours after the anastomosis and she passed the button in nineteen days. Recently, in a third operation, I caught the bottom of the blind gut with a clamp, inverted it and clamped it off and there is now left only a small amount of mucosa which I will dissect off or burn off with the cautery. I was exceedingly careful to make the abdominal closure secure. In closing the peritoneum I used catgut for the muscle and fascia and horse-hair for the skin; it held well. Her functions are normal, digestion excellent and she will go out in excellent shape. The remarkable feature of this case was that she ever recovered sufficiently from the gangrenous condition found, to ever come to a secondary operation. I do not believe an artificial anus should ever be made except as a last resort. I have had large experience with strangulated hernia, have done four primary resections all made through a supplementary abdominal incision, all recovered. Since that time I have had one death, but the patient's condition was exceedingly bad. I attribute the four consecutive successful cases largely to luck—quick work and a careful technic, we do have a great deal of luck in such cases.

As to anastomosis I have had a large experience in resection work. In strangulated hernia and gunshot work I think the ideal method of making a resection is the Murphy button. I know of no method that makes the beautiful approximation that the button does. In one case my assistant, Dr. Kirchner did a beautiful double resection, for perforating gunshot wound of the small bone, using the Connell suture and the Murphy button used above the Connell suture; the button passed on the fourteen day, the man dying after complete recovery from operation, from hemorrhage of the lungs. At the autopsy the button union was so perfect it was almost impossible to find where the anastomosis had been made.

As to time, in strangulated hernia and gunshot work, it is frequently necessary to work fast. Such patient's take anesthesia badly and the button is the quickest and most perfect method. If we trim the mucosa down and properly apply the button the union is perfect.



There is another point in regard to gunshot work and that is in regard to investigation. We have worked out a very careful technic. Every case that penetrates we assume has perforated and an exploratory laparotomy is made. We have never had a death from an exploratory laparotomy, and we have a good record on our gunshot work and think it is largely due to our system in dealing with cases of this kind. After opening the abdomen, the stomach, liver and spleen are examined, the transverse colon is then thrown back, the duodenojejunal angle is then sought, the jejunum is picked up and the small bowel given over to the ileo cecal valve, the large bowel is then examined to the anus. When there is a perforation of the bowel we irrigate these cases copiously, first to cleanse the abdominal cavity, and second, to stimulate the patient. In case of shock, immediately you begin the irrigation the pulse gets better.

As to drainage, we never use gauze in gunshot cases; we have seen some disastrous results follow the use of gauze. In wounds of the liver it is essential; many can be saved by a proper use of the gauze tampon, and it is the only way many of them can be saved. As soon as possible after operation these gunshot wound patients are placed in an exaggerated Fowler position and drained through a glass tube, which has been placed in the pelvis through a stab wound above the pelvis, and which is kept in for a varied period of time and when it is taken out a small gauze or rubber drain is substituted for the glass tube. Wherever I see the indications I drain, and I generally feel better when I have a drain.

In all these cases of gunshot wounds we make a median incision. I believe it is the only incision through which you can make a thorough search. In gunshot wounds the incision is made in the median line, a little below the ensiform to a little below the navel. By a search of viscera such as has been outlined, there is no danger of overlooking a perforation, and we can repair the perforations as we meet them. This does not require complete evisceration of the patient; only a small amount of the gut is exposed at a time.

We have in a ward here, a beautiful piece of surgery done by my assistant, Dr. Doyle, on Saturday. It was a multiple perforation of the bowel, the result of a gunshot wound. It was necessary to resect six feet of the small bowel. Anastomosis was made with the Murphy button. The patient's bowels have moved and everything points to a perfect recovery. It is a most interesting case.

## DISCUSSION.

Dr. A. E. MEISENBACH said he had seen Dr. Brown's case when presented at the St. Louis Medical Society, and thought it a unique case in surgery. There had been a tendency to include the colon in the same category with the appendix, many considering it an unnecessary organ and the cause of many ills. This woman was performing all of her functions in a normal manner in spite of the fact that all of the colon, except the lower part of the sigmoid and the rectum, had been removed. It would be a very important and instructive procedure to follow this woman's history up to a later day. As to strangulated hernia, there was a time the opinion expressed by Dr. Brown was opposite to his present opinion, he had considered it a very dangerous operation. In these cases where it was necessary to make an anastomosis he always preferred the artificial anus and a secondary operation. The change of opinion was due to more perfect asepsis and at that time the Murphy button was unknown, and the button was entirely responsible for many of the successful cases.

Dr. WILLIAM S. DEUTSCH said that the case called for but little discussion but he wished to congratulate Dr. Brown on the successful outcome.

THE PRESIDENT said that he hoped that Dr. Meisenbach's remarks would not be taken seriously. He trusted that no member present would be misled by that kind of humor to believe that because the colon had been removed and the patient survived, that therefore, the colon was unnecessary.

Dr. MEISENBACH replied that the President had misunderstood him, that he was not in the least facetious. He was in dead earnest.

Dr. M. G. SEELIG demonstrated the

### **Combined Ethyl-Chlorid and Ether Anesthesia by Means of the Bennett Apparatus.**

Recent experimental work has shown that the ill effects we frequently attributed to ether, are equally due to chloroform. I refer to lung and kidney complications. Post operative pneumonia has been shown to be due to exposure of the patient during the operation, or to emboli, as well as to the irritating local effect of the anesthesia. When everything has been said about chloroform, it still remains that it is a heart depressant and, again, there are certain patients who have

an idiosyncrasy against chloroform. An ether death rarely occurs without warning but that chloroform, even the respiration and color may be good and after four or five breaths the patient is dead and all means of restoration are of no avail. If I must deal with two deadly drugs and one is such that it gives me a little warning and the other does not, I prefer the former. The difficulty with ether is that you require a very large amount as compared with chloroform and it is naturally a pulmonary irritant. It is due to the fact that it lessens the quantity of ether necessary that the Bennett apparatus is so very good. The anesthesia is started with an evanescent anesthetic, as, for instance, nitrous oxid gas or kelene. Since it has been proved that the latter is so safe an anesthetic I have adopted it, as it avoids the necessity for carrying a heavy iron cylinder, and it is not a suffocating anesthetic. Following the kelene we use an ordinary amount of ether. An advantage in this machine is that there is no smell of ether, although the ether ready to be used whenever necessary, is not noticed by the patient. When the patient is once under the effect of the kelene I turn on the ether gradually. If the ether is too strong and starts up a laryngeal reflex, I reduce it and turn on the kelene, or equal parts of kelene and ether. A patient going under this anesthetic in three minutes would require fifteen to twenty minutes with chloroform. I have anesthetized an hour to an hour and a half with a half ounce. As a consequence of the small amount of ether administered, the patient comes out of it very much more quickly than if he had taken a large amount of the drug.

## DISCUSSION.

Dr. T. C. WITHERSPOON, was very much interested because in the preceding two weeks the doctor had given this anesthetic for him some ten times. One case was a vaginal hysterectomy, there were several abdominal operations, one patient was a little boy and it was necessary to fracture a badly set arm and reset it, and another was a cranial case where there was a good deal of chiseling to do. All the patients had gone under it very quickly and they had struggled very little. They had slept after it and there was much less vomiting than in chloroform. In two cases there was no vomiting and even in the cranial case it was but a momentary vomiting and small in amount. In these cases the doctor had given about one-sixth to one-eighth of a grain of morphin forty minutes before the operation. Usually the patients slept

for about an hour and when they awakened it was with a very small amount of nausea. In one case there was rather more vomiting. The operation was done at 1 o'clock and at 7 o'clock she vomited four times. He felt safer with it than with chloroform. In one case that he had operated upon there were not more than five full breaths before the doctor gave the ether. The patients had not feared the anesthetic and with the injections of morphin there was a feeling of languor so that they did not feel nervous.

Dr. DEUTSCH was sorry this was the only demonstration of Dr. Seelig's method that he had been able to witness. It seemed to him that after getting a thorough knowledge of the method it would be proper to determine in what way it would be of advantage over other methods. Dr. Seelig had said that he preferred ether to chloroform whenever he could use it. This was the opinion all over the world now, and even the men who once advocated the use of chloroform were beginning to use ether. That simmered the method down to the advantage of kylene with ether over the use of ether alone. The first advantage claimed for it was that it reduced the time necessary to anesthetize the patient and that it did away with the vomiting. Whether that was due to the kylene or to the injection before the operation the essayist had not made quite clear. After a period of ten years of giving anesthesia, he believed that ether could be given without the struggling symptoms, without much vomiting afterward, and that it could usually be given safely. He believed that in the use of any narcotic sooner or later some heart disturbance would be noticed. No patient could well stand a narcotic that so suddenly took away his vitality. He believed that the blue faces that were sometimes noticed in anesthesia were due to the fact that the patients had been anesthetized in a hurry, this was a mistake; the surgeon must have plenty of time for his anesthesia. It was not because a patient wanted to fight but because the air had been shut off suddenly and he involuntarily struggled. So it would seem to be the question whether any patient could be taken and so quickly anesthetized as in the case presented. If there was any particular advantage to be gained by it, he wanted to learn of it, and was interested in knowing what the good effects were. He hoped that the essayist, in closing, would tell them more of his experience with it, whether he had always had good effects with the kylene and he wished be shown wherein the kylene in combination had an advantage over ether alone.



Dr. GEORGE GELLHORN said that it afforded him great pleasure to indorse Dr. Seelig's statements. He had conducted the narcosis in a number of operations done by Dr. Gellhorn, in all of these the abdominal cavity was opened from above or below except in two or three. There had been no untoward effects and the vomiting was markedly reduced. In about four cases there was some slight vomiting. The last few cases recovered without any vomiting whatever. The patients after the operation usually slept from half an hour to an hour and a half and they did not complain of pain after their return to consciousness. In those cases the anesthesia had done what Dr. Seelig had promised and had done more than was accomplished in the demonstration just made. The kylene or nitrous oxid had the great advantage of reducing the quantity of ether. He felt as Dr. Witherspoon,—an uneasiness during the anesthesia; but there was no doubt that with the present method the ether was reduced to a minimum so that the danger was almost entirely eliminated. The scopolamin-morphin injections rendered the patients more susceptible to the anesthesia. One point should be borne in mind. After the injection of the scopolamin-morphin the patient should be kept entirely quiet and after half an hour the patient would be more or less somnolent. The method just presented deserves an extensive trial, though it must be admitted that a definite judgment can not be passed until reliable statistics covering thousands of cases can be compiled. One objection that might be raised was the high price of the instrument and, furthermore, the necessity of training oneself to this particular apparatus, but he believed that this objection should not exist in reality. We ought to adopt the method of England, where anesthesia has become a specialty, where a man does nothing but give anesthetics and where he keeps himself informed of everything concerning anesthesia.

Dr. JOHN GREEN, JR., wished to know if the doctor had had any experience with repeated transient ethyl chlorid anesthesia as an anesthetic, in tenotomy of the ocular muscles in children, it pressed the advantage that the child could be allowed to come out from under it, the effect of the tenotomy noted and if insufficient the anesthesia could then be resumed. He wished to know if there was any record of a disastrous effect after repeated use.

Dr. ELBRECHT asked the essayist to give his experience with ethyl chlorid given alone. He wanted to know his experience with regard to its effect as a heart depressant. He added that he did not

take kindly to any anesthesia apparatus. At the Mayo clinic, Rochester, they gave ether and nothing but ether. No apparatus was used but, instead, about a yard of gauze in four thicknesses, and when they wished to give more air the gauze could be removed. With the Bennett apparatus, in order to get fresh air the patient would have to draw it in through the tube. Another thing, he did not like the name kelene. It sounded proprietary. The only advantage in its use that he could see was in the way of economy. He referred to one case where the patient had received forty grams of ethyl chlorid. The patient went on the table with a pulse of 100 per minute, full and bounding; respirations 20 per minute, full and deep. During anesthesia the pulse was about 80, full and strong, respiration 38, pupils markedly dilated; the pulse went up to 37 when the patient was put to bed; There was no vomiting, no nausea. He was much interested in ethyl chlorid. It was considered a comparatively safe anesthetic by everybody who had used it. A Boston surgeon had reported 200 cases of pure ethyl chlorid anesthesia with but one death, and some man in California had done 400 operations, some lasting an hour, with good results in every case. He believed that this anesthetic had its limitations; the only reason he could see for its use was for the sake of economy. It was very useful as an examining anesthetic, he had put patients under it and inside of three minutes they were talking to him feeling no ill effects. Its expense was something against it. He wished to know if Dr. Seelig had used it in combination with chloroform.

He stated that for oculists and aurists it was particularly fine, ethyl bromid was used in the same way, it could be given in from 2 to 6 grams. Every bit of air must be excluded in order to get the anesthesia, with all the air excluded the patient would go under it in thirty seconds and come out of it just that quickly with no bad effects.

Dr. BROWN hardly felt that he was in position to speak of the merits of this anesthesia inasmuch as his experience was limited to two cases. The thing that had impressed him most was the rapidity with which the patients go under it, the small amount of the anesthetic required, and the rapidity with which they come out from under it. He, too, thought the open method was the ideal method of giving anesthetic. As Dr. Elbrecht had said, he had been much impressed with

it at the clinic of Dr. Mayo. Another point of interest was in reference to post-operative vomiting, it had been his experience that with all patients who are anesthetized, whether by ether, chloroform or by the method suggested by Dr. Seelig, there was always or nearly always an evacuation of the contents of the stomach, following operation but persistent vomiting he had rarely seen at the City Hospital unless there was some reason for it, as sepsis. Although they had a variety of cases, they had seldom given a hypodermic of morphin after the operation, whether the incision was large or small, whether the enucleation was wide or trivial, from an exploratory incision to a major operation, the patient would invariably have a stormy time for the first twenty-four hours, but in all such cases the convalescence was prolonged by giving opium after the operation. In operation about the stomach he believed it was always wise to give such hypodermic before the anesthetic. He had used the method of anesthesia recommended by the essayist, in two cases, the first anesthesia lasting forty-five minutes. The other was a pus case with appendectomy and the patient was under the anesthetic for an hour, in each instance the patient had not seemed to be completely under the anesthetic; in one, the patient had been drinking heavily and was on the verge of delirium tremens and in the other there was quite a good deal of pus in the abdomen and he had noticed that the abdominal muscles were never completely relaxed. Ether given in the method outlined (as used in the clinic at Rochester) he believed it to be the ideal method, though it apparently took much more ether, for so much of it was mixed with air.

Dr. ELBRECHT said that while he and Dr. Brown were at Rochester they did not see a single patient vomit on the table. The woman had given 12,000 anesthetics for Dr. Dr. Mayo. They used the regular 1/4 M. can of ether, a large hood with stockinet over it and the piece of gauze. While the method of Dr. Seelig was very fine it should be remembered that not one man in a hundred would get the chance to become familiar with it.

Dr. MEISENBACH said that his first experience in giving ether was by the good old fashioned method of a towel and a paper cone. Later, when he came to St. Louis, chloroform was used exclusively and he had never used anything else except in two classes of cases, namely, patients with a heart lesion and those men who take their highballs long and often; in those cases the mixed anesthesia was useful. He had adopted the method of giving opium injections, believing that pa

tients did not need as much chloroform when opium had been previously injected. The anesthetist must be thoroughly conversant with the method used and it was harder to get familiar with the giving of ether than the use of chloroform. It was not quieting to the nerves of the patient to be drawn out into the operating room with all the paraphernalia in view and with the operator marching up and down meditating with a serious face upon the outcome of the operation, such patients, being nervous, would not take the anesthetic kindly. He never allowed any of his patients to be taken into the operating room before being anesthetized; a great point was to have the patient in a calm condition. He had never had a death that he could attribute to the chloroform, although he had seen but one or two cases that came near dying owing to the carelessness of the anesthetist. Many times the anesthetist watches the operator instead of the patient. As to the bag and other part of the apparatus, Parke, some ten years ago, had brought a similar bag from Germany for the purpose, and it was necessary to school the individual in the use of the method. He was glad he had seen the demonstration, it was possible that he might use the method. One thing he wished to call attention to: Livingstone, of New York, had made some very dogmatic statements in regard to the administration of ergot before operating, the first dose being given twenty-four hours before the operation, in that case there was but little or no post operative vomiting; possibly there was something in that, but he was loath to believe that any method was so beneficent as to do away with all the drawbacks.

Dr. GREEN related a case of an elderly woman with a chronic purulent bronchitis and cardiac arrhythmia to whom he was compelled to administer an anesthetic recently. After careful consideration, chloroform was determined upon. Although freely stimulated, the patient took the anesthetic very badly, the pulse dropping and growing weak. He imagined that the combined ethyl chlorid—ether anesthesia would be particularly applicable to these cases, as the disagreeable early bronchial irritation of ether was entirely eliminated.

Dr. R. E. KANE stated that it was the first time he had seen this anesthetic given. He agreed thoroughly with what Dr. Deutsch had said. He could not but believe that an anesthetic that could produce anesthesia as quickly as this was a very dangerous one—it must severely tax the system, and he thought that the mortality would be



high. If the ethyl chlorid produced anesthesia in the way that ether and chloroform do, it would certainly be necessary to shut it off at the right time or disastrous results might follow. He had been so unfortunate as to be present when four patients died under the anesthetic. In two cases he believed it was the fault of the man giving the anesthetic; in two cases chloroform had been given; two were minor operations; one had occurred in the City Hospital, in that case the patient had taken it four times and always did all right, the last time the patient got about ten drops and was dead; in one other case it was the same. In another case the patient was an alcoholic and the chloroform was pushed. In chloroform there would be trouble with the heart before there was any difficulty with the respiration. He had seen two cases that nearly died under ether, and wished to know just how the ethyl chlorid produced the anesthesia. He did not believe the morphin had much to do with the effects produced, but he had seen it given before chloroform and before ether and yet there had been much excitement.

Dr. DEUTSCH did not want to be put on record as having made any objection to this method of anesthesia, and he hoped he would not be understood as a kicker against a new method. He simply wished to know what the benefit was, and hoped that what had been said tonight would help in bringing about specialization in the anesthesia line. He had done what he could during the ten years he gave anesthetics here. In St. Louis the surgeon pays his anesthetist a fee of \$5 or \$10 and thinks that amply sufficient; in other cities the bill goes to the patient and the fee ranges from \$25 to \$100. It was a science in itself and if a young man could be induced to take that up the surgeons of the city should see that such a man got a proper living out of it.

Dr. LAYTON, referring to the deleterious effects, such as pneumonia and bronchitis, said it was a question whether they were due to the large quantity of ether, or whether a small quantity would have the same effect. It was a question how large a part the instrument played. He thought this instrument just as handy as the Allison inhaler or any other. If it was desired to give fresh air it was as easy to remove it as in the ordinary method; the amount of ether was decidedly lessened. He believed that the method of giving the ethyl chlorid first was very much the liking of the patient. Most patients

dreaded the ether and would take the ethyl chlorid very readily because there was none of the suffocation that accompanies ether.

Dr. SEELIG, in closing, said that the thing that pleased him most was that he had aroused a feeling of doubt. When he entered the hospital in New York they were using the open method. Dr. Bennett introduced the instrument and a greater hue and cry than was raised by that house staff he had never heard but in six months they were absolutely dependent upon the instrument. Dr. Deutsch had asked whether it was the kelene or the morphin that produced the results. In reply he could only say that he was not an anesthetist, he was a surgeon and, as such, was interested in getting good anesthesia for his patients. As to the expense, even if the instrument did cost \$40 that did not figure for one second. Dr. Kane had thought that so quick a method must be necessarily dangerous. He could show, from a report of 50,000 cases, that there was one death from kelene to four from ether and five from chloroform. Though it might appear that the patients went under it too quickly, the fact remained that the patients did not die. Why they did not die he could not say. Kelene, nitrous oxid and all other evanescent anesthetics depend upon their quickness for their efficacy. If ether or chloroform was crowded, the anesthetist killed his patient but that was not true of kelene or nitrous oxid when a properly made mask was used. Dr. Mayo's name had been quoted frequently in the discussion. Dr. Mayo was his personal friend and he admired him as much as any one, but that did not mean that every method of his, every knot, every suture, simply because it was done by Dr. Mayo, was one to be adopted. The point that Dr. Elbrecht did not bring out but should have brought out, was that the assistant who gives the anesthetic for Dr. Mayo has done it for sixteen years, and any one who had given an anesthetic that long could give it successfully through a gas pipe if necessary and that lady could give it unquestionably better than he could give it with the Bennett or any other apparatus. The mistake that Dr. Elbrecht made was that he wanted every cross-roads doctor to be able to give it. It should be considered a serious thing to give anesthesia. The appliance was not made for the general practitioner. As to the open method, the appliance could be so regulated that the ether could be closed off entirely, or given absolutely by the drop method. What advantage has the open method over this? As to the cost, he did not care what it cost, the cost of the thing he was going to use did not figure. The Mt. Sinai

Hospital Directors objected because they had to pay \$2 for the nitrous oxid and \$40 for the instrument but the druggist kept a tab on the amount of ether used and found that the instrument soon paid for itself by lessening the amount of ether required. If he was going to be operated upon by a cross-roads doctor he would want to take the anesthetic that that doctor was accustomed to give. He was not defending the instrument. He was thoroughly satisfied with it. He had seen it used for four years. He had never been so absolutely struck by anything as by the effectiveness of this instrument. That it had not entirely stopped the vomiting was due to the fact that the vomiting was not entirely due to the anesthetic. What he wished to do was to introduce an anesthetic which, when a patient of his was to be operated upon, would put him in the best position to stand the operation.

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### **Bridging of Nerve Defects.**

In connection with the report of the final result (after eight years) of a case of nerve transplantation, Powers (*Annals of Surgery*) discusses the various means used for overcoming neural defects. With reference to his own case referred to, the operation was performed on a young man eight years ago, at which time, a month after the leg had been crushed, a section four inches long of the great sciatic nerve of a thirty five pound dog was implanted to restore the continuity of the external nerve, and three-quarters inches having been destroyed. The approximation was perfect and the wound healed by first intention, but there has been no recovery of motion in the affected parts, though the operation was successful as far as sensation was concerned. The injured limb atrophied, and is at present one inch smaller in circumference than its fellow. Out of a total of twenty-two cases of nerve-grafting reported in the literature, three only have shown good results, and three others "fair." Twenty-two per cent of the cases operated upon have terminated in a satisfactory way. According to the opinion of some surgeons there is no intrinsic merit in a piece of nerve transplanted over any other organized material, and the nerve may be even restored over loops of ordinary catgut acting as a bridge. The writer is inclined to regard transplantation as a failure. After a review of the reported cases treated by anastomosis, resection of nerve, suture at distance, and tubulization, the author concludes that transplantation of foreign grafts should be abandoned, and that neuroplasty and anastomosis are the most available methods to be employed, or resection of nerve in selected cases.

## REPORTS ON PROGRESS.

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### X-RAY AND ELECTROTHERAPEUTICS.

In Charge of H. N. CHAPMAN, M.D.

#### Physics Applied to Medicine.

The following from abstract of "Lectures to Medical Practitioners on Physics Applied Medicine," by Sir Oliver Lodge, may be of interest:

In 1894, an experiment was exhibited to the British Medical Association, at Oxford, by Prof. Gotch and myself, showing the influence of the alternative path on *B* circuit sparks on a frog's nerve muscle preparation. We had found in Liverpool that the strong influence from 2 points on a copper wire in the *B* circuit when applied by electrodes direct to a frog's nerve had no motor influence, provided precautions were taken to prevent any current more in one direction than in another, although sparks  $\frac{1}{16}$ -inch long could be obtained between the applied needles. Nevertheless, if to these same needles, or to an other pair higher up the nerve, a tenth of a volt were applied in one direction, as by a fraction of a zinc copper cell, the muscle twitched vigorously, writing its record on a drum in the usual way. By arranging a clock to make contact at every second, a succession of twitches were maintained in the usual way, and at the same time the *B* circuit high-voltage, higher frequency disturbance was applied, taking all due precautions, such as thoroughly sound metallic joints, and earthing of the mean point.

At first nothing happened with each spark of the oscillating circuit, but gradually the nerve became paralyzed or clogged by them and ceased to respond to the low voltage stimulus, so that the trace on the drum gradually decreased and ultimately ceased, as if either the nerve or the muscle had been fatigued. The effect was not due to fatigue of the muscle, and fatigue of the nerve is unknown; it was either a paralysis or choking of the nerve of a temporary character. For, letting the *B* circuit disturbance now cease, while the low-voltage



clockwork contact continued going, the nerve presently recovered and the muscle began to twitch as before. Thus, it may be expected that these rapidly alternating currents, if long continued, gradually suspend for a time the activity of the nerves—in this case of the motor nerve—but produces no other effect; though, indeed, if they are too strong, they can excite tetanic convulsions. It has been asserted by d'Arsonval and others that the same choking or paralyzing action occurs on the sensory nerves, and accordingly it may be possible to render a limb anesthetic by subjecting it to high frequency oscillations for a long time. I have never experienced this and am unconvinced of the truth of the assertion, which I have only seen quoted and not responsibly made. I do not doubt that it would occur if the oscillations were applied to a nerve direct, as in the frog's nerve-muscle preparation they are; but when the nerves are embedded in tissues, it is extremely difficult to know by what path the currents go, and I am not prepared to say what effect they then have upon the nerves embedded in those tissues. There is a feeling, however, which I have so frequently had after dealing with alternating currents that I think it can not be imaginary, and my assistants have felt it likewise, viz., a feeling of undue languor or depression and fatigue. I have not noticed any permanent injury; but whereas we used to take these currents through our own bodies pretty frequently, we are now more chary of doing so, not because we feel any effect at the time, but because of the singular sense of nervous lassitude which afterward follows, and which I have been careful not to emphasize hitherto in order to minimize any influence of suggestion. I have become, however, more convinced recently of the objectivity of the sensation, and hence state it here, not as an ascertained fact, but as a hint to experimenters and practitioners.

One of the effects of the effluvium of the breeze discharge which accompanies many of these experiments, and especially the recoil-kick experiment, is the production of ozone, and I have never found that ozone has a good influence. I have suspected it many times of producing something akin to catarrh or inflammation of the mucous membrane of the nose. I would suggest strongly that inhalation of ozonized air is dangerous and that experiments in this direction should proceed with extreme caution. I think that the general public is afflicted with superstition about ozone. But of all the simple and convenient methods of applying rays to the body, nothing can com-

pare with radium. It is best to have the radium in little glass tubes, or otherwise inclosed, so that it shall not be affected by perspiration and the like, and so that the tube can be perfectly cleaned and disinfected.

Mr. Mackenzie Davidson's practice is to strap three or four tubes, for twenty minutes at a time, on a rodent ulcer, and after a few applications, at intervals of a week, he says it always benefits.

Mr. Hall Edwards makes the same assertion for lupus when treated by the high frequency effluvium. In the latter case it may possibly be the ultraviolet light concomitant which is doing the work. In the case of radium there is no ultraviolet light, but there is a mixture of cathode rays and x-rays, but the x-rays are stopped by the tube. The evidence seems to me clearly to point beneficial influence on surface diseases, but the deep-seated difficulty seems to remain as great as ever.

"Ionization" is the property which seems to me most hopeful, but how it is to be applied and brought to bear in a discriminating manner, so as to affect unhealthy tissue in one way and healthy tissue in another, is a puzzle, unless the unhealthy tissue is on the surface so that it can be exposed while the healthy is mechanically screened. The only suggestion I have been able to make is a discrimination by injecting something into the one tissue, which is not allowed to enter into the other and then applying the rays

### Effects of Alternating Current Baths Upon the Heart.

Speaking from an experience based upon a number of observations Büdinger and Geissler recommends the use in cardiac affections of the alternating current baths, introduced by Smith and Hommig. They have found as the result of such treatment a distinct improvement in subjective symptoms and a corresponding change in the physical condition of the patient.

The dyspnea, precordial oppression and palpitation yielded from the commencement of the treatment. At a later period the edema disappeared, the area of cardiac dullness diminished and the pulse rate fell, whilst the heart's action became more vigorous and regular. In recognizing its remedial value, the author's recommendation that it should not be used to the exclusion of other well known therapeutical measures. They attribute its beneficial action to the stimulating effect of the current upon the contractile elements in the circulatory and

general muscular system, which produces an alteration in blood pressure and an increased lymph circulation. In the selection of cases for treatment, great care has to be taken to exclude cases in which the heart, owing to a deficiency of residual energy, needs rest rather than active stimulation. Extreme cardiac debility with dilatation and advanced arterio sclerosis are recognized as contraindications.—*Medical Electrology and Radiology*, August, 1904.

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## GYNECOLOGY.

In Charge of GEORGE GELLHORN, M.D., St. Louis.

### The Effect of the Operations for Uterine Displacement Upon Subsequent Pregnancy.

H. P. Ritchie (*St. Paul Med. Jour.*, August, 1904) reviews 154 cases which were operated upon for displacement of the uterus by ventrofixation and ventrosuspension or by fixation of the round ligaments. Of these 154 cases, pregnancy took place 25 times in 21 cases. Six cases miscarried. Of these, 2 were subsequently safely delivered. In the remaining cases there was no dystocia at the time of delivery. The study of these 154 cases and of the limited number of operative methods used permits of the following conclusions :

1. Fixation by broad attachment of the uterus to the abdominal wall in a woman of the child bearing period of life is contradicted without the employment of accessory procedure to prevent subsequent pregnancy. In cases where pregnancy is not to be considered it should be the operation of choice.

2. The objection to the suspension operations lies in the difficulty of obtaining the happy medium of a sufficiently strong attachment to give the surgical result and a ligament so placed as to be non-obstructive to uterine growth with the great probability that the effect of the operation has been nullified by the successful outcome of the pregnancy.

3. The use of the round ligaments in any way suggested offers obstruction to enlargements of the uterus and the discussion on their use must be limited to the methods best suited to obtain constant support to the uterus.

4. Since experience has shown that the uterus by its own weight will pull away from the artificial ligament when attached anteriorly to

the face of the fundus, so should it pull away from the round ligament if so attached.

5. So far, the round ligament sewed to the posterior wall, although the cases are comparatively few, seems to meet the requirements.

Byron Stanton (*Cincinnati Lancet*, August 27, 1904) speaks on pregnancy after fixation of the uterus from the standpoint of the obstetrician. Reviewing the dangers of uterine fixation in regard to future gestation, he doubts whether this is a justifiable procedure in the child bearing period of life. "The operation may have its legitimate field, but that field is after the menopause."

Otto Fuchs (*Zentralbl. f. Gyn.* 1904, No. 29) successfully treated a case of very severe post-partum hemorrhage in a woman who had been laparotomized during her first pregnancy the year previous. The second pregnancy and labor had been normal, but two hours after confinement a copious hemorrhage occurred which was due to a peculiar configuration of the uterus. While the fundus and the posterior wall of the uterus contracted normally, the anterior wall presenting a deep pocket remained soft. In this the placenta was seated and had to be extracted manually. Apparently after the first operation adhesions had formed between the abdominal wall and the anterior side of the fundus uteri thus producing a not-intended ventrofixation. That ventrofixation is liable to cause serious disturbances during parturition has been proved by Kreutzman, Gradenwitz and others. Fuchs' case shows that this operation may, under certain circumstances, also lead to grave disturbance during the post-partum period.

Lynch, of Baltimore (*Monat. f. Geb. u. Gen.*, Band 19, Heft 4) reports two cases in which a preceding ventrofixation caused serious disturbance during parturition. In both cases pain persisted throughout the pregnancy. In one case, after artificial dilatation of the cervix, version and extraction was performed; while in the other case Cesarean section was necessary. Lynch collects the cases of dystocia subsequent to ventrofixation and finds that in 20 cases Cesarean section had to be performed. He condemns ventrofixation or ventrosuspension during the child-bearing period and recommends Alexander's operation in cases of mobile uteri or intra-abdominal shortening of the round ligaments, if the uterus be bound down by adhesions.

Von Guérard (*Ibid.*, Heft 2), on the other hand, has observed 57 cases of parturition subsequent to ventrofixation of which 51 were



normal in every respect. In 5 of the remaining cases delivery was indicated, and in one case a post-partum hemorrhage took place. This patient, however, had had post-partum hemorrhages in two confinements previous to the ventrofixation. Recurrence of the uterine displacement was observed in two cases. Among the cases operated upon by vaginofixation, 39 patients had 41 normal confinements; in 4 of these, forceps was applied to hasten delivery. Only one recurrence was noted. Von Guérard maintains that disturbances of parturition need not be feared subsequent to either ventrofixation or vaginofixation provided these operations are performed in the proper way. His method consists in fixation of the anterior wall of the uterus by means of two silk sutures which are placed in the uterine substance below the line connecting the Fallopian tubes.

### Rupture of the Gravid Uterus.

E. Ekstein (*Ibid.*). Careful sewing up of the uterus after Cesarean section diminishes the danger of spontaneous rupture at a subsequent parturition. As a rule, the scar in the uterine wall is well formed and solid; and silk sutures are absorbed. However, a number of cases has been reported in which after Cesarean section the anterior wall of the uterus was found to be thinned out, and others in which spontaneous rupture of the pregnant organ took place. Ekstein adds an observation of this kind to the reports in literature. The patient, 33 years of age, had had two confinements which both had to be terminated by perforation of the living child on account of contracted pelvis. At the third confinement, three years ago, Cesarean section was performed according to Fritsch's method (transverse incision through the fundus uteri). She was now in the ninth month of her fourth pregnancy, when, after scrubbing her room, she was seized with violent pain in her abdomen. Temperature normal; pulse and respiration rapid. Upon laparotomy the abdominal cavity is found filled with fresh and clotted blood. Fetus with membranes and placenta lie within the abdominal cavity. The uterus is ruptured exactly corresponding to the scar of the old Cesarean section. Supravaginal amputation of the uterus after Porro. Exitus letalis one and-a-half hours after operation. The microscopic examination of the specimen revealed the fact that the placenta tissue had grown through the entire thickness of the uterine wall and the cicatrix of the fundus.

Ekstein suggests that rupture does not depend upon the direction

of the uterine incision—longitudinal or transverse, but upon the site of nidation of the ovum. He believes this possibility can be avoided by a modification of the suture material and technic of suturing. As silk or catgut are sooner or later absorbed, metallic suture material should be used. Silver wire is not recommended because of its tendency to cut through. A thin band of lead, 0.5 to 1 cm. wide and 0.3 to 0.5 cm. thick, would be preferable and should be employed for uniting the uterine muscle. Four layers of sutures, then, should be made :

1. A submucous interrupted silk suture.
2. An intermuscular suture with lead.
3. An interrupted silk suture through peritoneum and superficial muscular layer.
4. An interrupted silk suture through the serous covering only.

### **Sounding of the Fallopian Tubes or Perforation ?**

W. Thorn (*Zentralbl. f. Gyn.*, 1904, No. 36.) opposes the popular, yet unfounded belief of the possibility to introduce a sound through the uterine cavity into the normal Fallopian tube. Of the numerous cases in literature of supposed successful sounding of the tubes, only two can stand criticism. In both cases the uterine ostium of the tube and interstitial part of the tube were abnormally wide. This extremely rare condition may arise from fibroids, interstitial pregnancy, lateral displacements of the uterus or from traction upon the tube which itself is adherent. Thorn has had the opportunity of observing two additional cases in which these premises were fulfilled and in which the uterine sound slipped into the lumen of the tube as was afterward ascertained upon operation. However, in by far the greater majority of cases the supposed sounding of the tube is nothing else but a perforation of the uterus. Numerous experiments with cadavers and with extirpated uteri have proved beyond a doubt that the introduction of the ordinary uterine sound through the inner opening of the tube is impossible. This fact is of great practical importance. For there are still many who adhere to the views of some older authors and employ "sounding of the tubes" in the treatment of sterility, pyosalpinx, hydrosalpinx, etc., and even in order to prevent further conception.

## BOOK REVIEWS.

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*The Courier of Medicine Company will mail, postpaid, any book reviewed, on receipt of price.*

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### **Blood-Pressure.**

As affecting Heart, Brain, Kidney and General Circulation. A practical consideration of Theory and Treatment. By Louis Faugeres Bishop, M.D., physician to the Lincoln Hospital, New York. E. B. Treat & Co., New York.

This book is very enjoyable and instructive. It reminds one of Balfour, whose book on "Senile Heart" has always seemed to us one of the most entertaining books in the literature of medicine. Dr. Bishop discusses the alterations of pressure in the blood vessels and the error of comparing the circulation to the passage of water through pipes; the management of primary and secondary low-pressure cases and of high-pressure cases. His explanations throw much light on certain obscure cases in elderly people, where occur slight attacks simulating paralysis, pains in various parts of the body, head-noises, etc. His remarks on the importance of early adjustment to the circulatory demands of each individual of his work, diet, exercise, baths, etc., are very effective and to the point. We commend this little book, especially to men who deal with problems of internal medicine and neurology.

### **Diseases of the Stomach and Intestines.**

With an account of their relations to other diseases and of the most recent method applicable to the diagnosis and treatment of them in general; also the "Gastro-Intestinal Clinic," in which all such diseases are separately considered. By Boardman Reed, M.D., professor of diseases of the gastro-intestinal tract, hygiene and climatology in the department of medicine of Temple College, Philadelphia. Illustrated. Price, \$5.00, net E. B. Treat & Co., New York.

The first few lectures consider the anatomy and physiology of the digestive tract. The following lecture evidences the fact that the author fully appreciates the necessity and importance of securing a complete and accurate history of the patient. The making a systematic physical examination is considered equally important. Special atten-

tion is called to the combined external method of outlining the stomach. If the stomach is to be distended the author prefers to have the patient take sodium bicarbonate followed by a few drops of hydrochloric acid (depending on the quantity of the salt) in a glass of water. He claims that this is the better and more reliable method. In considering the examination or the secretory function of the stomach, the usual methods are given. For obtaining the test meal the author commends the suction method. It must be remembered that no single test-meal is conclusive. The common qualitative and quantitative tests are presented. The author considers it absolutely necessary to make a urinalysis in every chronic lesion of the stomach. The urine should be collected in a graduated tube and not passed in the night-vessel. The feces should also be examined. The symptomatic guide to the diagnosis presented by the author will be found of great benefit to the general practitioner.—Several lectures on dietetics are given and should prove beneficial. The various methods of treatment, *e.g.*, exercise, hygiene, electricity, dietics, etc., are then presented. Medicinal therapy will be found beneficial. Attention is called to the fact that hydrochloric acid is injurious in various stomach lesions. Illustrative cases are given. The author has no faith in the pharmaceutical monstrosities which are said to contain pepsin combined with pancreation, since the two are incompatible. Saline mineral waters may lead to an active and permanent increase in the production of hydrochloric acid.

Chapter 4 considers individually the various diseases of the stomach and intestines. In classification the author has taken a middle-of-the-road stand. He thinks that functional disorders would be better considered under the title. "Diseases Having no Known Anatomic Basis." Splanchnoptosis is given considerable attention. Acute and subacute as well as chronic gastritis are carefully presented. Due attention and importance is given ulcer of the stomach. The author thinks that tuberculous ulcers of the intestines occur more frequently than similar lesions of the stomach. Cancer more frequently attacks the stomach and rectum than other portions of the digestive tract, because these regions suffer most from irritation.

The finding of a palpable tumor is the chief sign of an intestinal neoplasm. Cancer of the rectum is the most frequently encountered of intestinal neoplasms. The author's lectures, on intestinal obstruc-



tion are worthy of special commendation. The reviewer believes, however, that he should have more forcibly impressed the fact that delay in operation very, very, often means death. The author does not consider intestinal catarrh and diarrhea synonymous. He has given a very excellent series of lectures on appendicitis. Ochsner's, and the various methods of treatment are outlined. One third of the acute cases of appendicitis associated with general peritonitis die. Constipation, diarrhea, neuroses of the stomach, of the intestines, affections of the rectum and anus, and the surgery of the stomach and intestines are duly considered.

In summing up the review we have been very favorably impressed. For the general practitioner it is a very valuable book—in fact, any physician can find many valuable points. We heartily commend it. The publishers deserves credit for the excellent paper, accuracy and general appearance.

### **Diseases of the Nose, Throat and Ear,**

and Their Accessory Cavities. By Seth Scott Bishop, M.D. Third edition, thoroughly revised and enlarged, with 94 colored lithographs and 230 additional illustration. F. A. Davis & Co., Philadelphia. 1904.

This is a good work. For the specialist it is helpful to refer to recent books of this kind. This is up-to-date. The general practitioner would do well to study at least the diagnosis of every disease mentioned in this and similar treatises. He should learn, and may learn, from reference to cuts and descriptions to recognize diseases of the nose, throat, and ear. Dr. Bishop has given his views and method of treatment in a comprehensive manner. The book abounds in illustrations of instruments, of pathological states, of methods of examination. The author has gone into detail in a commendable and helpful manner.

### **Surgical Emergencies.**

Part I.—The Surgery of the Abdomen. Appendicitis and Other Diseases About the Appendix. By Bayard Holmes, M.D., professor of surgery in the University of Illinois. Sold only by subscription, 8vo, 368 pages, 39 illustrations in the text, 7 plates, two of which are in colors. Cloth, \$2.00, net.

Part first under the above title is an integral portion of the author's work on Surgery of the Abdomen. While dealing principally with the subject Appendicitis, the topics Typhoid perforation, Intussusception, Peritonitis, and Carcinoma of the Intestinal Tract are also taken up. The subject of appendicitis is of great interest to every practitioner,

and a work which besides dealing thoroughly with the anatomy, pathology, etc., of appendicitis carries the reader to the bedside of many characteristic cases in the author's practice is a welcome addition to medical literature. The literature of appendicitis is, as every one knows abundant, and no effort has been made in this work to collate the various contributions of the profession, but the author relates clearly and graphically cases illustrative of various phases of the disease taken from his own extensive experience.

### **The Gazette Pocket Speller and Definer.**

English and Medical. Second edition. The Gazette Publishing Co., 503 5th Avenue, New York.

This is a very useful pocket dictionary, especially adapted for physicians and medical students.

**The Perpetual Visiting and Pocket Reference Book.** Including Information in Emergencies from Standard Authors, also the following comprehensive contents: Table of Signs and how to keep Visiting Accounts, Obstetrical Memoranda, Clinical Emergencies, Poisons and Antidotes, Dose Table, Blank leaves for Weekly Visiting List, Memorandum, Nurses Addresses, Clinical Record, Obstetrical Record, Birth Record, Death Record, Vaccination Record, Bills Rendered, Cash Received, Articles Loaned, Money Loaned, Miscellaneous, Calendar for 1905. Bound in Morocco, Red edges. Pages 124. Price, 25 cents. The Dios Chemical Company, 2940 Locust street, St. Louis, Mo. 1905.

This is one of the neatest and most complete Visiting Lists offered to the profession. The Dios Chemical Company propose to furnish a limited number of this unexcelled Visiting List to the profession for 25 cents. The doctor will readily recognize that the Dios Company is saving no expense in keeping its name prominently before the profession, for whom it manufactures products, of more than ordinary merit, exclusively for the physician to prescribe. Those of our readers who desire a complete Visiting List, have only to remit 25 cents (for postage and wrapping) to the Dios Chemical Company, St. Louis, Mo.

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### **Announcement.**

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ORIGINAL CONTRIBUTIONS.

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**The Possible Victory Over the Great  
White Plague.**

By S. A. KNOFF, M.D.,

NEW YORK CITY.

**M**R. PRESIDENT AND GENTLEMEN:— Let me thank you for the honor you have conferred upon me by inviting me to address your distinguished Society. From the title of my subject you know that I am to speak of tuberculosis as the "Great White Plague." I have been informed that my audience here tonight is not exclusively a medical one; I will therefore try to render my discourse as popular as possible, and ask the physicians to whom much of it must sound like the A B C, pardon the occasional discussion of rudimentary subjects of hygiene.

While the etiology of tuberculosis is well known to the profession and even to the laity, it might be well to emphasize once more that the only direct cause of tuberculosis is the tubercle bacillus. Tuberculosis is an infectious, communicable,

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Address delivered by invitation of the World's Fair Entertainment Committee  
of the Medical Society of City Hospital Alumni, of St. Louis, Mo.,  
October 6, 1904.

preventable, and curable disease. The three methods of infection are by inhaling, ingestion, and inoculation.

Let us treat first the most frequent method of propagation of tuberculosis, namely, that arising from the indiscriminate deposit of the tuberculous sputum. A consumptive individual, even at a period when he is not confined to his bed, may expectorate enormous quantities of bacilli. Now, if this expectoration, or spittle, is carelessly deposited here and there so that it has an opportunity to dry and become pulverized, the least draft or motion in the air may cause it to mingle with the dust, and the individual inhaling this dust-laden atmosphere is exposed to the danger of becoming tuberculous if his system offers a favorable soil for the growth of the bacilli. By "favorable soil for the growth of the bacilli" must be understood any condition in which the body is temporarily or permanently enfeebled. Such a condition may be inherited from parents, or acquired through alcoholism, or drunkenness, or other intemperate habits, through privation or disease.

Besides the danger arising from carelessly-deposited sputum, or spittle, the inhalation or ingestion of small particles of saliva, which may be expelled by the consumptive during his so-called dry cough, when speaking quickly or loudly, or when sneezing, must also be considered as dangerous for those who come in close contact with the invalid. These almost invisible droplets of saliva may contain tubercle bacilli. Recent experiments in this direction have shown the possibility of infection by this means.

The next most frequent method of the propagation of tuberculosis is through the ingestion of the bacilli, that is to say, when the germ of consumption is taken with the food.

The third, and much less frequent way of the cause of tuberculosis, is the inoculation or penetration of the tuberculous substance through the skin.

What should we do to stop the first and most frequent source of the dissemination of the bacillus?

A patient suffering from pulmonary consumption should know that, no matter in what stage of the disease he may be, his expectoration, or spittle, may spread the germ of the disease if the matter expectorated is not destroyed before it has a chance to dry and become pulverized. The patient should, therefore, always spit into some receptacle intended for that purpose. It is best to have this vessel made of metal so as



not to break. It should be half filled with water or some disinfecting fluid, the main thing being to make it impossible for the expectoration to dry.

In factories, stores, railroad cars, waiting rooms, court rooms, restaurants, saloons, meeting places, theaters, menageries—in short, wherever many people congregate, there should be a sufficient number of cuspidors, well kept and regularly cleaned. They should be made of unbreakable material and have wide openings. If such measures are carried out there will be no excuse for anyone to expectorate on the floor and thus endanger the lives of his fellow men.

When outdoors the patient should use a pocket flask of metal, strong glass or pasteboard. There are numerous kinds of flasks in the market, and I show you here a few of them.

A handkerchief should never be used as a receptacle for sputum. Patients who are too sick to make use of light porcelain or aluminum cups, should have a number of moist rags within easy reach. Care should be taken that the rags always remain moist, and that the used ones are burned before they have time to dry. The paper spit-cups with their contents should, of course, also be destroyed by fire.

There will always be some consumptives who can not be persuaded to use the pocket flask, for the simple reason that they do not wish to draw attention to their malady. The only thing for these people to do is to use squares of soft muslin, cheesecloth, cheap handkerchiefs or Japanese paper handkerchiefs specially manufactured for that purpose, which can be burned after use. They should also place in their pockets a removable lining of rubber or other impermeable substance which can be thoroughly cleaned. This additional pocket could be fastened to the inside of the ordinary pocket by clamps, and would thus be of no inconvenience to the patient. A pouch of vulcanized rubber or an ordinary tobacco pouch may be used in place of the extra pocket of impermeable material.

The danger of dissemination of the bacilli through the so-called dry cough is relatively small; we should, nevertheless, insist that the patient hold his handkerchief before his mouth or nose when he coughs or sneezes. The consumptive should be advised to carry two handkerchiefs with him, one to hold before his mouth and to wipe it with after having expectorated; the other to use only to wipe his nose. By being

careful with the use of his handkerchiefs the danger of infecting his nose and bronchial tubes will be materially lessened.

Against the danger from infection through tuberculous food we will say that whenever one is not reasonably certain that the meat he eats has been carefully inspected and declared free from disease germs, it should be very thoroughly cooked. By this means one is certain to kill all the dangerous micro-organisms. Against the sale of tuberculous milk there are excellent laws in some states of the Union, which are rigorously enforced. In some the laws are less good, and in some there are no laws at the present time.

As you all know, there is still a disputed point regarding the direct transmissibility of tuberculosis from the bovine to man. It was my privilege to be present when Koch announced his conclusions at the London Congress of Tuberculosis that the bacillus of bovine tuberculosis was rarely, if ever, transmitted to man. I shall never forget the historical moment when, at the conclusion of Koch's lecture, the venerable Lord Lister rose and in a concise, dignified and eloquent way warned the world not to accept the theory just propounded. He said there was too much clinical evidence to favor the theory of transmission and he urged repeated experiments before accepting Professor Koch's conclusion. These experiments are still going on. What has been published about them up to this date is in favor of the acceptance of the transmission theory, and we physicians should persistently urge that the people continue to sterilize or boil milk and cook their meat if there is any doubt as to the absolute freedom from tuberculosis of the animals whence these products have been derived. It might be interesting to cite the other extreme which has been presented in a work recently published by von Behring. This distinguished author claims that there is no inhalation tuberculosis, but that all tuberculous diseases are contracted during childhood from milk derived from tuberculous cows, and that when an adult becomes tuberculous, it is, according to Behring, simply the outbreaking of the latent tuberculosis contracted during infancy. I venture to say that Behring's views in this respect are shared by extremely few who have studied tuberculosis carefully. The other day it was my privilege to dine with that distinguished Japanese scientist, Professor Kitasato, and in the course of our conversation he touched on the subject of the transmissibility of the bacillus

of tuberculosis from cattle to man. It was a revelation to me when he told me that in Japan such a thing as feeding a child with cows' milk was virtually unknown; and yet tuberculosis was quite frequent among young and adults. This, certainly would, in my humble opinion, strongly indorse the inhalation theory.

Inoculation, or the penetration of the tuberculous substances through the skin happens, perhaps, most frequently through injuries received while cleaning nicked or chipped glass or porcelain cuspidors which have been used by consumptives. It is also possible for the bacilli to enter the circulation if the person cleaning the spittoons happens to have a wound or open sore on his hands. Persons entrusted with the care of the spittoons in a private home or in an institution for consumptives should wear rubber gloves while cleaning these vessels.

At times the patient may inoculate himself by placing an accidentally injured finger in his mouth, or by carelessly soiling an open wound with his expectoration.

Physicians, students of medicine or veterinary science, butchers, etc., are also exposed to the danger of wounding themselves with instruments which have come in contact with tuberculous matter. Extreme care is the only remedy for all persons thus exposed.

After all that you have heard so far of the contagiousness, or rather the communicability of tuberculosis, and consumption in particular, I do not wish you to think that a breath in an atmosphere accidentally laden with bacilli would certainly render a healthy individual consumptive, or that by a swallow of tuberculous milk, or a little injury from a broken cuspidor, one must necessarily become tuberculous. The secretions of our nasal cavities, doubtless also the blood, and the secretions of the stomach of the healthy individual, have bactericidal properties, that is to say, they kill the dangerous germs before they have a chance to do harm. Therefore, the healthy man and woman should not have an exaggerated fear of tuberculosis, but they should, nevertheless, not recklessly expose themselves to the danger of infection.

But who are the individuals who must be particularly careful so as not to be attacked by the almost ever-present tubercle bacillus?

There are four classes: First, those who have a heredi-



tary predisposition to consumption; secondly, those who have weakened their system and thus predisposed themselves to consumption by the intemperate use of alcoholic beverages, by a dissipated life, or by excesses of any kind; thirdly, those whose constitution has been weakened through disease—for example, pneumonia, typhoid fever, smallpox, whooping cough, measles, syphilis, influenza, etc.; fourthly, those whose occupations, trades, or professions—such as printing, hat making, tailoring, weaving, and all occupations where the worker is much exposed to the inhalation of various kinds of dust, have rendered them particularly liable to consumption.

Before I proceed to give you a few of the essential points how to overcome such a predisposition to consumption, let me answer the question which I believe I read in the minds of many who honor me by their presence here, namely: What about those who have hereditary consumption? Permit me to say that the popular notion concerning hereditary consumption is, in my humble opinion, absolutely erroneous. Consumption has, perhaps, never been inherited, either from the father or mother, but the child has usually been infected by its well-meaning but ignorant consumptive parents after birth.

The most common modes of infection during early childhood are, perhaps, the following: The consumptive mother caresses the child and kisses it on the mouth; she prepares the food, tasting it to judge its temperature and flavor through the same rubber nipple, or with the same spoon the child uses, and thus unconsciously conveys the germs of the disease from her own mouth to that of the child. Later on the child will play on the floor in the room and should there be a consumptive in the family who from carelessness or ignorance is not prudent in the disposal of his expectoration, the child is likely indeed to be infected. The little one, while playing on the floor, may with great facility inhale the bacilli floating with the dust in the air and can thus acquire tuberculosis by inhalation, the full development of which may only take place in later years when the origin will not be thought of. Again, the little child touches everything it can take hold of, infecting its fingers thoroughly, and by putting them in its mouth may cause tuberculosis by ingestion which will gradually develop into consumption of the bowel. Lastly, should the child's nails be neglected, it may scratch itself with the infected fingers and thus inoculate its system with the disease. Tuberculosis of the skin, or lupus, may result from such an accident.



Even later on, when the child goes to school, the danger of contracting tuberculosis is not removed. The child may become attached to a little consumptive companion and they may kiss each other when going to or coming from school; or, again, the infection may result from the not unusual practice of swapping apple cores, candy, chewing gum, etc.

To prevent these modes of infection during childhood is certainly possible by taking the following precautions: Not only should consumptives be religiously careful with their expectoration but they should associate as little as possible with young children, and stay away from playrooms and playgrounds. We repeat that to kiss children on the mouth should never be allowed, and the little ones should be taught never to kiss or be kissed by strangers. They should be kissed by their own friends and relatives as little as possible, and then only on the cheeks. The floor on which the child plays should be kept scrupulously clean: fixed carpets in such a place are an abomination; they only serve as dust and dirt collectors, and not infrequently harbor the germs of contagious diseases. The hands and nails of little children should be kept as clean as possible. Expectorating on playgrounds should be considered a grave offense and should be punished accordingly. These playgrounds should be kept clean and as free from dust as possible, being daily strewn with clean sand or gravel.

To protect the child from contracting tuberculosis during school-life, we must have the co-operation of the teacher and superintendent of public and private schools, and even kindergartens. If I had my way I would have all the school children provided with a little leaflet of instructions, which would read about as follows:

Do not spit, except in a spittoon or on a piece of cloth, or a handkerchief used for that purpose alone. On your return home have the cloth burned by your mother, or the handkerchief put in water until ready for the wash.

Never spit on a slate, floor, sidewalk or playground.

Do not put your fingers into your mouth.

Do not pick your nose or wipe it on your hand or sleeve.

Do not wet your finger in your mouth when turning the leaves of books.

Do not put pencils into your mouth or wet them with your lips.

Do not hold money in your mouth.

Do not put pins in your mouth.

Do not put anything into your mouth except food or drink.

Do not swap apple cores, candy, chewing gum, half-eaten food, whistles, bean blowers, or anything that is put into the mouth

Peel or wash your fruit before eating it.

Never cough or sneeze in a person's face. Turn your face to one side and hold a handkerchief before your mouth.

Keep your face and hands and fingernails clean; wash your hands with soap and water before each meal.

When you do not feel well, have cut yourself, or have been hurt by others, do not be afraid to report to the teacher.

I have said that consumption is not hereditary, and children born of consumptive but intelligent and conscientious parents need not necessarily contract the disease. I myself have seen children of consumptive parents grow up to be strong men and women; but their parents were not only careful, clean and conscientious, they were also aware that, while they did not transmit consumption to their children, they did transmit to them a tendency, or predisposition to this disease. This hereditary predisposition is, however, a condition which can be overcome by judicious training, proper food, plenty of outdoor exercises and the avoidance of all excesses. Predisposed individuals should dress sensibly and according to the season. They should never wear garments which restrict circulation or hinder the free physiological function of the chest or abdomen. Tightly laced corsets, tight neckwear, tight shoes, are all pernicious and particularly dangerous to the individual predisposed to tuberculosis.

A predisposition, whether inherited or acquired, may be explained as a peculiar weakened state of the system which offers a favorable soil for the growth and multiplication of the germs of consumption. I have already said what should be the duty of parents if they are themselves consumptives and fear to have transmitted to their offspring a predisposition to the disease.

Concerning alcoholism and other intemperate habits, which are so often the forerunners of consumption, I desire to speak plainly. I do not wish to appear to you as a temperance lecturer, condemning all and everything which does not subscribe to the doctrines of the temperance party. I consider alcohol a medicine, at times indispensable in the treat-

ment of certain diseases; but liquor as a beverage is never useful and nearly always harmful. Alcoholism must be considered the greatest enemy of the welfare of a nation, the most frequent destroyer of family happiness, the cause of the ruin of mind, body and soul, and certainly the most active co-operator of the deadly tubercle bacillus.

To combat alcoholism (drunkenness or intemperance), education above all is required. Extreme prosecution and fanatical laws will do little good. From early childhood the dangers of intemperance and its fearful consequences should be taught. In schools and at home the drunkard should be pictured as the most unhappy of all mortals. While the very moderate use of feeble alcoholic drinks, such as light beers, may be considered as harmless to adults when taken with their meals, alcohol should never be given to children, even in the smallest quantities.

The clergy, too, might help in the combat of tuberculosis. They should have their churches well ventilated, they should advocate individual communion cups, and in Roman Catholic churches articles of adoration which are kissed by the devout should frequently be wiped off with an antiseptic solution. The kissing of the Bible when taking an oath should be discouraged by divines and jurists. Neither clergymen, jurists, statesmen or laymen should indorse patent medicines, the constituents of which are totally unknown to them.

On the duties of the public press in this fight against the "great white plague," the most formidable disease of the masses, I can not speak earnestly enough. Our daily and weekly papers have already done much good in disseminating knowledge regarding the prevention of consumption. By continuing to spread the literature of the various associations and committees on the prevention of tuberculosis, they do, perhaps, more good than any other agent.

Unfortunately, the public press serves also for the advertising of the many "absolutely sure consumptive cures," which are from time to time put on the market by unscrupulous quacks. I am nevertheless sanguine enough to hope that in time the better class of newspapers will, in the interest of the community at large, no longer extend the hospitality of their columns to such dangerous advertising matter, especially when it is protested against by the intelligent reader. How many poor consumptives have lost their last little reserve fund by

giving everything they had for a dozen bottles of the "sure and quick cure," only those who come much in contact with them know. How unscrupulous some of these charlatans are in their methods of procuring certificates of cure, which they then publish as a bait to the unfortunate help-seeking sufferer, is something which can hardly be believed. Let me tell you of one instance: A poor woman in the last stages of consumption came to me seeking advice. When asked for the name of her former medical attendant, she confessed that she had been treated for a number of weeks by a quack concern, and now, her means being exhausted, she was made to understand that they would not continue to treat her unless she would give them a certified testimonial that she had been thoroughly cured of her disease, which had been pronounced an advanced case of consumption by prominent physicians. This poor sufferer had not derived any benefit whatsoever from the treatment, and as a result her conscience would not permit her to become a partner to such a procedure.

Some of these unscrupulous concerns resort to absolute fraud; to beguile the public they use the name of the great scientist and benefactor, Prof. Robert Koch, of Berlin, as though he were associated with them in their business and treatment. They advertise his picture beside that of an individual with a similar name, and head their advertisements with "Professor Robert Koch's Cure." While the medical profession at large was, of course, aware of this evident fraud, the public did not seem to be, and in order to be able, officially to deny any such connection, I wrote some time ago to Prof. Robert Koch, Berlin, Germany. The Professor's answer was a lengthy one and full of indignation, and I will only give you the substance of it. He says that the alleged "Lung Cure" of Dr. Edward Koch, or under whatever name this system of treatment may be presented to the American public, is a very base fraud, and that he, Geheimrath Professor Dr. Robert Koch, has no relations whatsoever with Dr. Edward Koch, or with any other individual who may be connected with this concern, nor with any of its methods of treatment; neither has he ever had any relations with the same. He hopes that we may be successful in putting an end to this base and fraudulent concern. This is to be particularly desired in the interest of the many poor consumptives who have been deceived by the use of his (Prof. Robert Koch's) name in connection with the so-called Koch's Consumption and Asthma Cure.



There are numerous other concerns which put their secret consumption remedies on the market and resort to all sorts of illegitimate means to make people believe that their "cures" are indorsed by the profession.

To break the nefarious trade of the men who deal in "sure and infallible consumption remedies, to stop the practice of the men and women who claim to be able to diagnose and treat consumption by letter, the Christian Scientists, the Faith Curists, who ridicule preventive measures and the laws of cleanliness and hygiene—which are the laws of God—but who, as a token of faith, demand their fees in advance, we have but one weapon, and that is education; education by the conscientious press, the clergyman and the teacher.

All employes, men and women of whatever class, should be allowed ample regular time for their meals, which should never be taken in the workshops. Lastly, employes should not be overworked. There should be reasonable hours for all, so that the laborer may enjoy the bodily and mental rest which is essential to the preservation of health. The germs of any disease, but particularly those of tuberculosis, will always find a more congenial soil for development in an overworked and enfeebled system. Child-labor, that is to say, the employment of children under fourteen years of age, in factories, workshops, mines, etc., should be prohibited by law. The child is more susceptible to tuberculosis than the adult, especially when its delicate growing organism is subject to continued physical strain. That there are still sections in our country where child labor is permitted is one of the saddest and most disgraceful blots upon the good name of our nation.

I have said at the beginning that tuberculosis is a curable disease. Let me emphasize this now by a somewhat stronger term, in saying that pulmonary consumption is one of the most curable of all chronic infectious diseases. But how is it cured? Not by drugs, nor any specific remedy, not by quacks, Christian scientists, faithcurists, or other mysterious powers, but simply and solely by the judicious use of God's fresh, pure air, sunshine, plenty of good water, inside and outside, good food, and all this under the guidance of the physician. The latter may prescribe now and then a little medicine when the just-mentioned means do not suffice to bring about a cure. Unfortunately, only a few people can have all the ne-

cessary environments, the best of food, the best of air, and the best of care in their homes; for this reason sanatoria have been established, that is to say, institutions exclusively consecrated to the care of the consumptives.

Modern phthisiotherapy teaches that it is not absolutely necessary to have these sanatoria in high altitudes, or in climates reputed to be particularly favorable to consumption. There are now existing as many, and perhaps more, in the eastern states, such as Massachusetts, New York, Rhode Island, etc., than there are in the high mountainous regions, and the patients in all of these institutions are doing well and many of them are cured. In my own service on North Brother Island, where I have as many as sixty to seventy-five consumptives all the year around, even there on this island, completely surrounded by the East River, we accomplish cures. Your own State, Missouri, and your own city, St. Louis, certainly offer enough sites to establish sanatoria where you could cure, and lastingly cure, patients taken there in the earlier stages of the disease. To have a sanatorium near your city will do away with nostalgia, (homesickness), which is often such a depressing factor to the patient sent far away from his home. Another advantage of a nearby institution is that you can take care of your advanced cases which you might wish to remove from their unsanitary homes in order to protect their families and make the patient himself comfortable and relieve his sufferings.

A valuable institution to control tuberculosis in a city is a dispensary. A special dispensary for tuberculosis should, however, in order to be efficient, not only treat the consumptives by medicine and advice, but also provide, in case of necessity, meals for the absolutely poor, for, as you all know, food is more important in the treatment of tuberculosis than medicine. If you don't do this, your tuberculosis dispensary will only do half its work. Let me, in relation to this, give you a little anecdote which happened to me in my earlier days when I had charge of a dispensary class. A young man, coming to my class, suffering from a moderately advanced pulmonary tuberculosis, complained to me of having no appetite. I prescribed for him what I considered a good tonic and advised him to improve his appetite by moderate outdoor exercises. A few weeks later I saw him again; the scales revealed an additional loss in weight. I asked him whether his

appetite had not improved? The reply was in the affirmative. He saw the puzzled expression in my face and said: "Doctor, it is not your fault that I did not gain weight; you improved my appetite, I could eat a whole lot if I only could get the food. Being out of employment and having but little money left, I have lived on milk and crackers ever since you improved my appetite." This might sound humorous, but it is really pathetic and shows how much it is necessary for a modern tuberculosis dispensary to have something else to dispense besides advice and medicine. Whether this something else be milk and eggs or entire meals through the aid of the diet kitchen, must depend upon the facilities and means placed at the disposal of the dispensary.

To summarize how the victory over the great white plague may become possible, let me say that we must interest, first our philanthropists, the majority of whom have been apathic up to this date toward the sufferings of our consumptive poor and the tuberculosis problem in general. Instead of more libraries, more churches, more universities, let us have first more model tenement houses, more parks and playgrounds, more sanitarily constructed schools, more public baths, more healthful places of amusement to counteract the attraction of the saloon, and more sanitary workshops and factories, so as to prevent the predisposing causes to tuberculosis.

To cure the tuberculous, let us have seaside or mountain sanatoria to cure the scrofulous and tuberculous children, preferably with schools attached so that the mental development of the children shall not suffer while the child's physical condition is being taken care of. To cure the consumptive adult, let every family physician be especially trained in the early discovery of pulmonary tuberculosis; let the school boards engage a sufficient number of assistant school inspectors to make periodic examinations of the chests of all pupils and teachers. Let municipalities and philanthropists combine to establish a sufficient number of well-conducted and well-equipped tuberculosis dispensaries for the ambulant consumptive poor, a sufficient number of special hospitals in or near the cities for the more advanced cases, and lastly, a sufficient number of sanatoria at not too great distance from the city, where all the curable patients may be cured. All three kinds of institutions have not only for their purpose the cure and care of the tuberculous, but also their education in regard to the prevention of

consumption. Thus, whoever has passed through any of these institutions will, on his return to his former environment, become a hygienic factor, teaching his fellowmen the principles of what to do and what not to do to "catch consumption."

If all these suggestions should be carried out, and in a land as rich as ours with so many noble, generous-hearted philanthropists and trained physicians and sanitariums, the victory over the great white plague should not remain a possibility but soon become a certainty.

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## The Early Diagnosis of Uterine Cancer.

By GEORGE GELLHORN, M.D.,

ST. LOUIS, MO.

WITHIN the last few years the question of carcinoma has entered into a new phase. A remarkable movement is developing throughout the civilized world. In Germany, England and the United States permanent organizations have been formed in order to centralize a complete research work on all points bearing upon cancer. The facts thus far known are appalling. Cancer is on the increase. According to Roger Williams, cancer is four times as common as it was fifty years ago. Welch and Orth place the uterus first in the list of organs most frequently affected with primary cancer, namely, in about one-third of all cases. In England 61,715 women died within a period of fifteen years; of these, 25,000 died of uterine cancer. Of the 25,000,000 of women in the German Empire, 25,000 die yearly of this disease.

These sad facts are but little influenced by the extirpation of the carcinomatous uterus. Only about 30 per cent of the cases of uterine cancer which come under medical observation are operable at the time of the first examination; and of these not more than about one-fourth remain free from recurrence, so that, at the most, only 10 per cent of all cases are really saved from death.



To improve these depressing results, all gynecologists agree upon the absolute necessity of early operation. Since, however, an early operation depends upon an early diagnosis, numerous propositions have been made to bring about a better understanding of the conditions in question and to diffuse a wider knowledge of the dangers of the disease and of the means of overcoming the same. This difficult problem seems to have been solved by a German gynecologist. Dr. G. Winter, professor of gynecology in the University of Königsberg, in the province of East Prussia, has opened a systematic warfare. He wrote a monograph on the subject of cancer and sent it to all physicians in his province; in this monograph he reviewed the symptoms of uterine cancer and the means of arriving at the correct diagnosis. Secondly, he issued a pamphlet on the same subject to all midwives who, in Germany, are under governmental control and do a good deal of minor gynecologic work, especially in rural districts. Finally, he published popular articles in the daily papers and magazines addressing himself to the women in general and emphasizing the dangers of the disease and the necessity of early medical consultation. Winter's report after one year's experience appeared recently. His results are highly encouraging. Physicians, midwives and patients have co-operated to increase the percentage of operable cases.

Based upon the work of Winter, it was suggested, at the recent meeting of the Gynecologic Section of the International Congress of Arts and Science, by Dr. F. J. Taussig, of this city, that the American Medical Association should undertake a similar system of warfare against uterine cancer. The matter was left in the hands of a committee to report at the meeting next June.

We should, however, not remain idle pending the action of the National Organization, but every one of us in his little circle should consider it his duty to emphasize again and again the points bearing upon cancer and to dwell incessantly upon the means with which to arrive at an early recognition of this disease.

It is from this standpoint that I take the liberty of presenting to you today a few specimens of uterine cancer—specimens, which though they are of every day occurrence, are nevertheless of eminently practical importance to the general practitioner who in the majority of cases is first called upon to

decide the presence of cancer. To speak with Cullen, Winter and many other authorities, the responsibility for the timely diagnosis of cancer rests with the family physician. It is he upon whom "we must rely to recognize the early symptoms and to indicate to the patient the appropriate treatment. Without his assistance the gynecologist will almost invariably see the case only when the disease is too far advanced to permit of a complete removal of the morbid growth."

The first case is that of a lady, aged 50 years, who came to me with the diagnosis of submucous myoma. Her sole complaint was copious hemorrhages at the menstrual period. Although very stout, she had grown even more corpulent of late. There was no vaginal discharge. Upon examination, a round tumor with smooth surface was seen within the outer os, dilating the latter to the size of a 50-cents piece. It was only after an attempt to enucleate this tumor and after I had examined microscopically the pieces removed that I realized my mistake and made the diagnosis of cancer. The disease, however, had already spread out considerably, and as you see in the specimen, had involved the entire mucous membrane of the uterus and left tube. I have reported this case in another connection in the *Interstate Medical Journal*, November, 1901, and will only add here that I saw the patient for the last time September 26, 1904, *i.e.*, almost four and one-half years after the operation and found her perfectly free from recurrence.

The second case was referred to me a year ago. The patient, aged 64 years, had been in the menopause for the last fourteen years. A slight bloody, and at times, offensive discharge, which occurred at irregular intervals for the last four months, had awakened the suspicion of her physician. There was nothing in the objective findings of the examination that pointed toward carcinoma. I made an exploratory curettement. Dr. Fisch had the kindness to make the microscopic examination during my absence from the city and found a typical adenoma. November 17, 1903, I extirpated the uterus by the vaginal route. The organ, as you see here, is very small; yet, upon opening the uterine cavity, I found that the mucous membrane had been fully regenerated though at the very thorough curettement, less than four weeks previous thereto, the uterine cavity had been vigorously cauterized with a 25 per cent solution of chlorid of zinc. Moreover, in the uterine

wall itself there was a round place distinguished from the surrounding normal tissue both in color and consistency which appeared macroscopically as an extension of the pathologic process. This macroscopic appearance is verified by the microscope. You will see in the section under the microscope that the morbid growth extends into the deeper layers of the uterus and presents the characteristics of a true carcinoma much more pronounced than in the section through the scrapings under the other microscope. I saw the patient last September 27, 1904, *i.e.*, ten months after the operation and found as yet no recurrence.

The third case, a lady, aged 38 years, came to me with the diagnosis of carcinoma of the uterus. From her history only a few points require mentioning. Her mother and two of her aunts died of carcinoma of the stomach and breast respectively. Her menstruation was regular, but was very scant, lasting five days; it occurred last just four weeks previously. She had had one confinement sixteen years ago. Lacerations of perineum and cervix resulting from this parturition were not sewed up until three years ago. For the last year she has had local treatment for "ulceration of the uterus" with temporary relief. Nine days prior to my examination she happened to consult a physician at a watering place in Texas on account of a very slight offensive discharge. This physician made the diagnosis of cancer which was afterward confirmed by her family physician, who made a microscopic examination of a small excised portion. There were no other symptoms nor was there any appreciable loss of weight, but the patient looked decidedly cachectic. The examination revealed a small erosion and two hard nodules in the scar of the old trachelorrhaphy. I extirpated the uterus by the vaginal route September 7, 1904. You will observe in this specimen that in spite of the insignificant symptoms and the short duration of the disease, the cancer has already deeply invaded into the tissue of the cervix. The patient has made an uninterrupted recovery but, of course, it is too early to say whether the operation was done in time.

You have noticed that in these three cases the cancer was rather far advanced and, yet, it was only through the microscope that the correct diagnosis was obtained with exactness. How much more is the microscope of paramount importance in determining the earlier and earliest stages of the disease.



Now and then, but fortunately growing less frequent, the view is expressed that the microscope can not be relied upon, that microscopic examination has, in certain cases, failed to reveal the presence of a carcinomatous process, and that the only certain signs are those of clinical observation. It is easy to show the incorrectness of such statements. It has to be proved first that the microscopist who has failed to find cancer in the section, though the disease was in existence, is a reliable and skilled examiner. If he be such, mistakes may be said, for all practical purposes, not to exist.

This statement is well illustrated by a sad experience in my own practice: A woman, aged 53 years, already in her menopause, had been treated during the last four months for "ulceration of the womb." Her physician dissatisfied with the progress of the case, sent her to me, April 2, 1904, to obtain my opinion as to the possibility of cancer. There were no suspicious symptoms whatsoever. Upon examination, the condition of the genital organs was so nearly normal and the erosion was so well healed that I sent the patient back to her physician, but instructed her to consult him again in case irregular hemorrhages should occur. Such a complication arose only two and one-half months later when I was asked the second time by her physician to take charge of the case. I found the patient greatly weakened by an abundant hemorrhage which had existed for almost a week. I immediately transferred the patient to a hospital and made a thorough curettement. The vaginal portion was extremely friable and from the posterior wall of the uterine cavity, particularly on the left half, numerous pieces of tissue, some of which were as large as a pigeon's egg, were removed with the curette. You may picture my surprise when the microscopic examination of these pieces which macroscopically resembled carcinoma most closely, revealed nothing but a hypertrophic endometritis. Thinking that the carcinomatous degeneration might by chance have been absent in the one piece examined, numerous sections were made from all the removed pieces. Yet, no malignancy could be detected.

The situation was most perplexing. Here was a woman of advanced age seized with a persistent and abundant hemorrhage half a year after cessation of menses. A large soft mass was localized in the uterine cavity, and the pieces removed strongly resembled carcinomatous tissue. This, then, seemed



to be a case in which the insufficiency of the microscope was apparent. The clinical observations concurred in the establishment of a diagnosis which the microscope was unable to verify. Moreover, there seemed to be no other affection to which the macroscopic findings could be attributed. Consequently, after a long and careful consideration of the case, I determined to ignore the negative outcome of the microscopic examination and performed a vaginal hysterectomy seventeen days after curettement. In addition to the supposed cancer, the patient suffered from a mitral insufficiency and a chronic nephritis which, unfortunately, resulted in her death four days after operation. Any other cause, such as sepsis, intestinal obstruction, etc., could be excluded with certainty.

If you will look at this specimen you will see the uterus considerably enlarged and thickened, but there is macroscopically no sign of cancer anywhere; nor did the microscopic examination of several excised pieces show any cancerous degeneration. This experience serves as a good illustration of the fact that clinical symptoms, however clear and convincing, are not unimpeachable until verified by the microscope.

While it should be borne in mind that in the early stages of uterine cancer which form the sole subject of this paper, the microscope furnishes us with the only positive means of arriving at an exact diagnosis, yet there are a number of other factors which we must not neglect. These may conveniently be divided into, first, general diagnostic considerations, and, second, the diagnostic signs of special forms of carcinoma.

The general diagnosis begins with the family history. Though heredity in cancer is not established, the frequency of this disease in members of the same family is too important a fact to be left out of consideration.

In the personal history of the case, the age of the patient has to be noted. Carcinoma is most frequent in women over 35 years; yet, as a matter of fact, no period of life is exempt. The earliest recorded case was one of 8 years of age, and in the Gynecologic Section of the recent International Congress of Arts and Science, there were reported two authentic cases of cervical cancer in young women of 23 years of age.

Child-bearing and injuries sustained during parturition are generally conceded to have important relation to the development of cancer. Chronic inflammatory affections of the

uterus, viz., endometritis and erosion are noteworthy etiologic factors.

While in the early phases of uterine cancer the classical symptoms, viz., abundant hemorrhages, offensive discharge, pain and cachexia, are, as a rule, lacking, there may appear certain symptoms which should at once awaken the suspicion of the physician and should induce the latter to insist upon a thorough examination and careful search for carcinoma. These symptoms are slight hemorrhages occurring after coition, straining at stool or lifting of burdens. Post-climacteric hemorrhages are highly suspicious. Nor should any departures from the normal menstrual type or irregular hemorrhages occurring between menstruations escape the attention of the physician. The older the individual the greater is the probability of cancer. In connection with slight hemorrhages or in the absence of the latter, a more or less copious watery discharge is eminently suggestive of early stages of uterine carcinoma.

Symptoms arising from adjacent organs and structures do not occur until the cancer has extended beyond the limits of the uterus. The only exception is a urinary disturbance due to a bullous edema of the bladder which is claimed by several authors to precede in some cases all other manifestations of the disease. Therefore, bladder trouble of obscure origin in older patients should call for an examination for uterine cancer.

The special diagnosis depends upon the location of the new growth. Carcinoma may arise :

1. From the vaginal portion.
2. From the cervix.
3. From the body of the uterus.

The diagnosis of carcinoma of the vaginal portion is comparatively easy because of the greater accessibility to sight and touch. A cauliflower-growth will readily be recognized. The infiltrating form with an overlying covering of intact mucous membrane is more difficult to distinguish. Yet, broadening of the cervix, the irregular nodular surface, the circumscribed cartilaginous consistency and the bluish discoloration which is intermingled with yellowish dots is very suspicious; if an ulceration commences, no doubt is left as to the carcinomatous nature. In these ulcerations which are surrounded by hard, irregularly elevated borders, the friability of the tissue

is very pronounced. A fingernail or sound can easily be forced into the tissue and will produce copious bleeding. The curette will, without difficulty, remove smaller or larger pieces of tissue.

We, then, have, in order to establish the diagnosis in these cases, at our disposal, first, palpation; second, inspection through a speculum; third, the use of the sound and of the curette. There will, however, remain a large number of cases in which the diagnosis can only be made by a microscopic examination of an excised piece of the suspected portion. The less experienced physician should make free use of this method, inasmuch as the exploratory excision is but a slight and easy procedure. The technic of excising a piece is as follows: Under the ordinary antiseptic precautions grasp the cervix with tenaculum and pull it downward as far as the entrance of the vagina. With knife or scissors remove a wedge including part of the suspected portion and part of the apparently healthy tissue. Close the wound with catgut sutures and pack the vagina with iodoform gauze. An anesthetic is, as a rule, not necessary. The excised piece should not be handled but placed at once in absolute alcohol or 10 per cent formalin solution.

The differential diagnosis in early stages of carcinoma of the vaginal portion is of paramount importance. Cauliflower growths may sometimes be simulated by submucous fibroids with ulcerated surface. Examination with the sound will prove that the tumor in question springs from the inside of the cervix or uterine body and is surrounded by the external os. In addition, the consistency of these fibroids is much harder than that of carcinoma. Circumscribed inflammatory thickening of the vaginal portion might be mistaken for carcinoma, especially if there are distended follicles, so-called Nabothian cysts, which cause an irregularly nodular contour of the portio. Inspection will reveal the smooth mucous membrane and the small transparent retention cysts. In doubtful cases, microscopic examination is indispensable.

The physician is often confronted by the question whether he has to deal with a cancerous ulcer or an ordinary erosion. An erosion is but seldom elevated above the surface of the vaginal portion, the papillary erosion alone forming an exception. As a rule, the erosion surrounds the entire os of the uterus; it shows no well-defined and hard border as does the carcinoma

and presents a gradual and irregular transition into the normal pale bluish epithelial covering of the portion. Its color is bright red. It feels slightly granular and is not firm nor does it usually show any tendency to bleeding. Not infrequently small patches of whitish epithelium are seen dispersed over the surface of the erosion.

An erosion is never a disease *sui generis*; it is only a symptom, just as headache or jaundice are not diseases but symptoms of some other affection. Generally speaking, it is caused by the irritating and macerating discharge from the uterus. The latter may be produced by inflammatory changes in the mucosa of the cervix or body of the uterus or may be but an expression of some constitutional dyscrasia, *e.g.*, anemia and chlorosis. Although it seems but logical that the cure of an erosion depends upon the cure of the underlying cause, exclusive treatment of the erosion itself has been, in the past, the play-ground of minor gynecology. Saenger, Duehrssen, Thornton, Cullen, Winter and, quite recently, Sinclair, have pointed out that there is no indication for local applications to the eroded surface alone, and yet, daily experience proves that many physicians treat these erosions weeks after weeks with an stringent, antiseptic or caustic medicines. The protracted course of such treatment leads unavoidably to delay in diagnosis, and if the erosion be of a carcinomatous nature, this delay may prove fatal. The only possible course to pursue, then, is self-evident; in any case of erosion treat the underlying cause or, if there exists the least doubt as to malignancy, excise a piece for microscopic examination,

True ulcers which might be mistaken for beginning carcinoma are:

1. Decubitus ulcers found in prolapsus of the uterus or as a result of ill-fitting pessaries; these heal rapidly after the cause is removed.

- 2 Tuberculous ulcers which usually are associated with a general or a genital tuberculosis; microscopic examination is required.

3. Soft chancres recognized by their multiplicity upon the vaginal portion and other parts of the vagina as well as upon the external genitals.

4. Syphilitic ulcers, the correct diagnosis of which is greatly aided by the history of the case. In doubtful instances, microscopic examination will, at once, decide the question.



The early diagnosis of carcinoma of the cervix is greatly impeded by the fact that the growth is not accessible to the sense of touch or sight hidden as it is above the external os. Upon examination there might be nothing but a thickening and hardening of the cervix, and inspection through a speculum reveals a smooth normal mucous membrane covering the vaginal portion. In these cases the slightest suspicion aroused by one of the carcinomatous symptoms enumerated above should justify the dilatation and curettement of the cervical canal. Friability and profuse bleeding point toward carcinoma. When the destructive process reaches the outer os thus producing an ulceration or, later on, a crater, the diagnosis is easy. Unfortunately, in such cases the disease is, as a rule, far advanced and the chances for timely interference are greatly diminished.

The only conditions that might be mistaken for cervical cancer are chronic metritic processes and cervical fibroids. In none of these affections, however, is the infiltration of the tissue of the cervix uniform and diffuse nor is the tissue itself friable. To confirm the diagnosis, the microscope will have to be resorted to.

The diagnosis of cancer of the body of the uterus presents the greatest possible difficulties. The clinical symptoms are not pathognomonic and may as well be interpreted as symptoms of endometritis. Nor can the bimanual examination of the size and consistence of the uterus be relied upon. The exploration of the uterine cavity is indispensable wherever there is the slightest suspicion of cancer. No case with a watery discharge or irregular menstrual or climacteric hemorrhages should be left unexamined. The exploration of the uterine cavity is accomplished by the examining finger after dilatation of the uterine canal, by the sound or by the curette. The last is, by far, the best means of making a diagnosis. The curettement should be made in a systematic manner and should remove the entire uterine mucosa. The microscopic examination should not be limited to one or two pieces but should include the entire scrapings.

I am well aware that I have not brought forward anything new nor original. But the subject of cancer does not suffer by repetition—it is a subject concerning which we should never tire of speaking; it is a field the established facts of which must become perfectly familiar to every one of us. To recog-

nize this deadly disease in its earlier stages when proper treatment offers its best chances is as much to the patient and to the good of mankind as the treatment itself.

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## The Baby Incubators on the "Pike."

A Study of the Care of Premature Infants in Incubator Hospitals Erected for Show Purposes.

By JOHN ZAHORSKY, M.D.,

ST. LOUIS, MO.

(Continued from page 80, February Number).

## OTHER INDICATIONS.

While the rectal temperature must remain the most reliable criterion of the proper incubator temperature, it is by no means always accurate. The infant has a thermo-regulating mechanism, however feeble it may be in some, which controls to a certain extent the internal temperature. Thus, the lessened flow of the blood to the extremities results in cold hands, which can be touched by the nurse at every feeding. Cold hands and feet may mean insufficient oxygenation, feeble circulation or an insufficiently heated incubator.

On the other hand, thermotaxis is strained by an incubator that is too warm, and perspiration may be found on the forehead of the feeblest infant. It is a sharp reproof that too much heat has been used. Often the perspiration in a warm incubator is not sensible, since the warm air favors rapid evaporation, and the activity of the sudoriferous glands is manifest by the appearance of sudamina and miliaria. Thus, in the case of St. Louis, who on account of a severe indigestion, had a subnormal temperature, the incubator heat was elevated to 92°, and on two or three occasions a very intense erythematous

blush appeared, on the edges of which were typical sudamina and miliaria maculopapules. Yet this infant had suffered from hypothermia, with the incubator at  $90^{\circ}$ , for several days, caused by indigestion. When the incubator was elevated to  $92$  to  $93^{\circ}$ , the skin lesions appeared, without an abnormal rise in temperature, showing the adjustment of the organism to the increased heat supply.

It is obvious that the adjustment of the incubator temperature to the needs of the infant presents many difficulties. Different observers will regard the several indications with a varying importance, and hence, the great differences in opinion. There can be no question that the baby should be warm and comfortable. Some will feel most comfortable with a rectal temperature of  $97^{\circ}$ , others will need  $99^{\circ}$ , or even a fraction more. I shall refer to other phases of this in treating of special diseases.

While it was the rule to take the rectal temperature from two to four times daily, in every case of cyanosis the temperature was taken as an additional precaution (see Cyanosis). Repeated vomiting also should suggest a more careful watch. A very rapid loss in weight, when no other cause can be assigned, demands inquiry into the heat supply. Somnolence or cutaneous hyperesthesia are indications for inquiry into the bodily temperature. A convulsion may be the first sign of overheating.

#### I V .

#### THE FOOD.

While Rotch and Morse have had very good results in feeding premature infants on modified cows' milk, and in private practice it may at times be impossible to obtain a wet nurse, in an institution human milk is alone permissible. The advantages are so many that it does not seem worth the while to make comparisons. Rotch's argument that cows' milk can be accurately modified to the needs of the infant does not hold, since the human milk may also be modified. But the comparative sterile nature, the easier digestibility and the immunity-conferring properties of human milk are sufficient to counterbalance any possible advantage derived from an accurate control of the composition. Hence, wet-nurses must be obtained. We had five wet nurses who, with their infants, slept in another part of the building. They furnished the

milk but had nothing to do with the care of the incubator babies.

#### THE WET-NURSES.

In the selection of wet-nurses I was guided by different principles than are usually expressed, since the assumption that a proper wet-nurse for such an infant is its mother or a wet-nurse whose infant is very young does not stand a critical analysis. It is a well-known clinical observation that young infants during the first few weeks of lactation are subject to a variety of dyspeptic disturbances, attributable to deleterious changes in the composition of mothers' milk. Reference to diarrhea, colitis, vomiting and flatulent colic is all that is necessary. Then, again, we know from the researches of Soldner and Camerer, Pfeiffer and others that human milk is strongest in the early days of lactation and gradually becomes weaker in proteids as the period advances. In a series of analyses they found the following averages (*Zeitschr. f. Biologie*, Band xxxiii):

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Time of lactation, day.	Nitrogenous substances.	Solids.
5	2.95	11. 7
8 to 11	2.53	12.25
20 to 40	1.78	12.35
70 to 120	1.43	11.44
170	1.08	10 85

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Obviously, a wet-nurse whose infant is at least three months old, is most suitable for the premature baby.

Naturally, the general health of the wet-nurse must be carefully investigated, but local disease of any kind (nose, throat, skin, etc.) must also receive consideration. A small, well protuberant mamilla is desirable.

Our nurses had all passed the third month of lactation, and as far as could be ascertained, except in one instance, the milk was in every way suitable.

Another question is concerning the number of wet-nurses required. A wet-nurse should be able to supply the needs of two or three premature infants. Budin found that under proper feeding and increased demands of repeated nursing the milk gradually increased in quantity up to a certain limit.



## MILK—HOW OBTAINED?

Infants weighing less than 1800 grams are generally too feeble to nurse the breast and must be fed some other way, hence it was our custom to have the milk drawn and the prescribed quantity fed in other ways. The milk was occasionally drawn from the breast by means of the breast-pump; generally the milk was drawn by manipulation, that is, a process of milking. It is really surprising, after a few days of practice, how readily the wet-nurse can "draw" her milk from her breast by "milking." The milk was drawn into sterilized glasses, poured into other sterilized glasses and kept in the ice box. This "milking" took place four or five times a day. In addition, the older infants were placed directly to the breast.

## COMPOSITION OF THE MILK.

No chemical analysis was made of the milk; in our work, I assumed that the milk of the five nurses at different periods would average a composition as follows: Proteids 1.50, sugar 6.50, and fat 3.75. This gives a caloric value of 670 large calories to the liter, or about 21 calories to the fluidounce. The calories were obtained in the usual way—by regarding the heat value of fat as 9.3 to each gram; proteids and sugar each were calculated as 4.1 calories to the gram.

For practical purposes the assumption of an average composition must be regarded as sufficient, as the daily variations are such that chemical analysis is almost impossible except in isolated cases where much milk is to spare.

Heubner considers the caloric value of mothers' milk as varying between 614 and 724 large calories (*Kinderheilkunde*, Vol. I) to the liter, and regards 650 calories as a fair average. I took a slightly higher average based on the analyses of American women (Rotch, Holt, etc.)

## METHODS OF FEEDING.

The methods of feeding varied with the needs of the patient. Very small infants—under 1200 grams, were usually fed with the ordinary medicine dropper. The nurse fed the milk by dropping one drop after another on the tongue. In many cases the Breck feeder (see "Rotch's Text-Book") was used with good results. If the infant was very feeble, would swallow with difficulty or would readily become cyanotic,

gavage was employed. When the baby became more vigorous a small rubber nipple on a small bottle gave excellent satisfaction. A small nipple may easily be made by perforating the rubber cot on an ordinary medicine dropper. Later the infant was placed to the breast.

#### NASAL FEEDING.

Monti recommends nasal feeding in premature infants. The milk is poured gradually into the nose by means of a small funnel. Finkelstein has also given his sanction to this method. Some writers, *e.g.*, Batten, *Lancet*, 1899, have found nasal feeding very advantageous in persistent vomiting of the newly-born.

In older children—after 2 years, this method is a well-recognized procedure, but in the premature the meatus is so narrow that it is exceedingly difficult to pass a catheter, while to permit its passage through the nose by gravity, subjects the infant to the dangers of an acute rhinitis from decomposed milk. It is impossible to cleanse the nose properly after feeding. In the nasopharynx, especially, particles of milk are likely to cling and by decomposition cause irritation, and a toxemia, more or less severe, may be a consequence.

The principal objection to nasal feeding is that it interferes with the respiratory tube. I have again and again observed cyanosis, even fatal, in very small infants result from milk running into the nasopharynx and nose when the head was kept down in oral feeding. These babies can not breathe through their mouth and anything that tends to obstruct the nose jeopardizes its life.

#### GAVAGE.

For the reasons mentioned nasal feeding was not employed, but in all cases where swallowing could be done only with difficulty, feeding was accomplished by pouring the required amount of milk into the stomach through a catheter.

While this does not seem to disturb these infants, in spite of care, regurgitation with its attendant evils frequently follows the withdrawal of the tube. The milk should not be forced, but should be permitted to flow into the stomach slowly by the force of gravity. A too rapid flow is resented by the stomach. The infant should be held upright when the tube is introduced, since the recumbent position favors the flow of the

regurgitated milk into the nasopharynx. Still, in very feeble, cyanotic infants the recumbent position only may be feasible. In withdrawing the tube great care should be taken that a drop does not fall into the larynx, which may cause fatal cyanosis.

From our experience I can not help but feel that gavage should be the preferable method of feeding in infants weighing less than 1200 grams (22 to 26 weeks gestation). In fact, in these cases it should be used at once without trying the drop method. As will be seen these feeble infants will become cyanotic on the slightest provocation, even the act of swallowing inhibiting the respiratory center. Deglutition is a dangerous act in these infants.

#### WHEN TO COMMENCE FEEDING.

While it is the custom with infants born at term to give them very little food until the milk secretion is established, it is a safer rule in premature infants to begin administering water and milk a few hours after birth. Then life depends entirely on the reception of food, since there is little stored in the tissues.

#### THE DAILY AMOUNT.

Before estimating the quantity to be given at each feeding and the interval between the feedings, it is best to decide how much milk is to be given in the twenty-four hours. This is a most important matter, since insufficient nourishment is followed by rapid loss in weight, hypothermia, cyanosis and death. On the other hand, overfeeding brings on disastrous results from indigestion, intestinal putrefaction, somnolence, loss in weight, and fatal atrophy. It is the duty of the physician, therefore, to adjust the amount of milk to the digestive power and the needs of the individual infant. The digestive ability is judged from the condition of the digestive tract, the character of the stools, the presence or absence of vomiting, and the approximate amount of urine passed. The needs of the infant is estimated from its weight, its appetite, and the rectal temperature.

Most authors find it sufficient to give the quantity at a feeding and the intervals. Budin, however, lays down definite rules, and from his large experience these rules must be considered most precise and extremely practicable. It should be

remembered, however, that this physician only considers infants weighing more than 1200 grams at birth.

Because time must be allowed for a certain degree of adaptation of the digestive apparatus to the milk, it is evident that during the first few days proportionately less nourishment must be administered; hence, Budin distinguishes two periods in the food adjustment:

1. During the first ten days of life.

2. After ten days.

The first division he again divides into three classes:

a. Infants weighing less than 1800 (1350 to 1800) grams.

b. Infants weighing from 1800 to 2200 grams.

c. Infants weighing more than 2200 grams.

I. Weight 1350 to 1800 grams.			II. Weight 1800 to 2200 grams.		III. Weight 2200 to 2500 grams.	
Day of life.	Amt. milk, grams.	Cal- ories.	Amt. milk, grams.	Cal- ories.	Amt. milk, grams.	Cal- ories.
2	115	76	128	83	180	118
3	160	105	175	115	236	145
4	210	140	226	150	295	195
5	225	150	308	207	335	220
6	250	165	324	218	370	244
7	280	185	335	225	375	246
8	285	188	350	230	385	250
9	310	205	380	250	415	272
10	320	210	410	270	425	278

TABLE 8.

In the accompanying Table 8, I reproduce the average amount of milk which he gives during the first ten days of life, but have taken the liberty to annex the caloric value, based on an average composition (650 calories to the kilogram).

While the amount in these tables seem somewhat arbitrary, it should be remembered that these figures are averages in quite a number of cases. It is obvious that the quantity of milk is progressively increased, so that the infant takes about three times as much on the tenth day as on the second day. If we calculate the energy quotient in these quantities with reference to the average weight (assuming 650 calories to 1000



grams of milk) the figures indicated in Table 9 are obtained.

	I. Weight 1500 grams.	II. Weight 2000 grams.	III. Weight 2500 grams.
Day of life.	Energy- quotient.	Energy- quotient.	Energy- quotient.
2	50	40	45
3	70	55	60
4	90	75	80
5	100	100	90
6	110	105	100
7	120	110	100
8	125	115	100
9	130	125	110
10	140	135	110

TABLE 9.—Showing energy quotient in the amount of milk, as recommended by Budin, for premature infants during the first ten days of life.

I shall have occasion to refer to this table again.

#### THE AMOUNT AFTER TEN DAYS.—BUDIN'S RULE.

Budin gives a very clear rule by which the proper amount of milk to be given after ten days' of life may be determined. It may be stated as follows: Take one-fifth of the weight of the infant, this gives the quantity of human milk to be given to the premature infant in twenty-four hours. Or, multiply the infant's weight by two and take one-tenth.

If we assume any weight of an infant as  $N$ , one-fifth of this would be  $N \div 5$ , which is the quantity of milk to be given to any premature infant. Then  $1000 \div N \div 5 \times 650$  = the number of daily calories ingested, and  $N \div 1000$  = the number of kilograms in the infant's weight.

Hence, the energy quotient is 130, that is, 130 calories are given for each kilogram of weight in twenty-four hours. As I shall discuss the caloric needs at length later on, it is only necessary to state that this is approximately the proper amount, as has been demonstrated clinically in many ways. If there is an error at all, it is on the side of liberality. As

we shall see, my own experience teaches that this energy quotient at ten days is too high, since indigestion is the rule if the food is given in such large quantities.

We shall next examine some records of the amounts given during my service (Table 10).

### Daily Quantity of Milk Ingested in cc.

I.- Weight, 1350 to 1800 grams.														
Day of life.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
St. Louis.	<sup>1</sup> 25	<sup>2</sup> 60	60	90	140	180	180	180	<sup>3</sup> 200	<sup>3</sup> 200	<sup>3</sup> 200	<sup>3</sup> 200	180	180
John H.	28	45	60	140	180	190	210	190	215	215	210	240	215	215
Pearl.	<sup>2</sup> 28	<sup>2</sup> 80	90	90	105	120	135	135	135	180	220	270	290	315
Margaret		<sup>2</sup> 90	95	150	150	180	210	250	225	210	210	210	240	240

II.- Weight, 1800 to 2200 grams.														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
John M.	90	210	240	300	300	300	300	300	300	300	300	300	300	330
Omega.	<sup>2</sup> 24	90	180	225	270	315	315	240	240	300	300	300	240	300
Bernice.		90	90	130	120	200	240	270	270	240	180	180	180	180

III.-Weight, 2200 to 2500 grams														
	1	2	3.	4	5	6	7	8	9	10	11	12	13	14
Annie.		90	200	220	240	300	310	320	300	300	360	330	360	360

TABLE 10.

<sup>1</sup>Three per cent sugar solution.

<sup>2</sup>One-half of this sugar solution.

<sup>3</sup>One-fifth sugar solution.

If these figures are compared with those of Budin (Table 8), it will be seen that the quantities we gave were considerably less for the corresponding period. And yet, vomiting and indigestion occurred in several cases. Thus, about the eighth day, St. Louis showed indigestion as shown by the character of the stools. On the twelfth day John H. had to have his food reduced for a similar cause. In the case of John M. there was in the beginning a too rapid increase, so that a subsequent increase could not be made for many days. In the case of Bernice, who commenced to vomit on the ninth day, the reduction in quantity was probably too great, since she cried with hunger after every feeding.

Perhaps, I was too cautious, but the previous poor results with overfeeding forced me to go to the other extreme. I shall give only three examples, and this is not with a view of criticising but rather to assist in arriving at a satisfactory conclusion as to the proper quantity to give (Table II).

Daily Amount of Human Milk in cc.  
First Series.—Weight 1530 to 1800 grams.

Day.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Mildred.		150	100	120	120	130	90	90	120	135	135	130	126	126
Leonore.		40	50	75	75	70	70	80	120	120	110	90		
George.	4	35	45	45	50	60								
Alice.	60	60	90	85	100	100	100	120	150	105	110	120	120	130

TABLE II.

From this Table it is seen that that the quantity given, with the exception of the first baby, was less than the averages laid down by Budin. Still most of these were near 1350 grams in weight. Mildred was overfed the first day and, consequently, showed marked dyspeptic symptoms lasting for many days, in spite of the reduction in the daily quantity.

I refrain from giving any more figures from the first series for the simple reason that the larger infants had to be put on mixed feeding. Altogether, from this study the conclusion is justifiable that Budin's figures in regard to the daily quantity of milk are somewhat high for feeble infants, while for those weighing more than 1800 grams his averages, no doubt, are correct. Still I would prefer to make the daily increment less large so that at least two weeks would elapse before the infant gets one-fifth of its body weight in milk for twenty-four hours.

During the latter part of the season I was enabled to draw a definite formula based on the caloric needs. This gives us a general rule for the feeding of those babies, which is eminently practical and, when properly controlled by noting the digestive functions of the infant, will lead to excellent results. Hence, I offer the following rules for the feeding of premature infants, and reserve the following Section (V) for discussing its value and practicability:

## RULES FOR FEEDING PREMATURE INFANTS.

1. During the first day of life the premature infant should receive sufficient human milk diluted with an equal quantity of water, or 3 per cent sugar solution, so that the energy quotient shall be thirty calories. Any fractional part of the first day should receive a proportionate part of the energy quotient.

2. On the following days the energy quotient should receive an increment of ten every day, so that an energy quotient of one hundred and twenty calories is reached by the tenth day. The quantities are represented in Table 12.

Day of life.	Energy- quotient.	Day of life.	Energy- quotient.
1	30	6	80
2	40	7	90
3	50	8	100
4	60	9	110
5	70	10	120

TABLE 12.

3. In many cases it is best to increase more gradually, especially if slight dyspeptic symptoms appear. It will be found more safe to keep the energy quotient the same for two or three days after reaching eighty, as indicated in Table 13.

Day of life.	Energy- quotient.	Day of life.	Energy- quotient.
1	30	8	90
2	40	9	90
3	50	10	100
4	60	11	100
5	70	12	100
6	80	13	110
7	80	14	120

TABLE 13.

4. After two weeks the energy quotient should be maintained near one hundred and twenty calories.



5. In all cases the stools must be watched for signs of indigestion. When the stools become greenish, or contain undigested curds it is best not to increase the energy quotient over eighty until these symptoms disappear.

The practice of making the energy quotient the basis of infant feeding is entirely rational, and its value has, as yet, been scarcely appreciated. While it is true that the length of gestation must also be considered, the weight must be the most practical guide.

I will give two examples of this method of feeding:

Day.	Milk, cc.	Cal- ories.	Day.	Milk, cc.	Cal- ories.
1	15	10	8	170	112
2	75	50	9	170	112
3	90	62	10	185	125
4	110	75	11	185	125
5	130	87	12	185	125
6	150	100	13	200	137
7	150	100	14	225	150

TABLE 14.

Baby A, arrived at 4 p.m.; weight, 1250 grams. Since its weight was one and one-fourth kilos, its daily amount of milk must be one and one-fourth times its energy quotient in calories. And since there are 670 calories (21 in an ounce) in a liter, the calculation is easily made, as follows (Table 14).

Of course, all these figures are given in round numbers; I can not claim that extreme accuracy is necessary. It should also be noticed that this is a hypothetical case, calculated on the basis of birth-weight; but as the weight decreases during the first week the figures are somewhat too large. Each time the baby is weighed, and as we shall see, it should be weighed every day, the quantity of food for the next twenty-four hours should be calculated. Now, while this may seem very complex, in a given case a more simple rule can be followed, but this rule should remain the standard by which other milk schedules may be judged. Here is an example from actual life at the Baby Incubators (Table 15) and illustrates the harmful results of trying to feed too much.

I cite the case of Omega to illustrate how one may begin by adhering to the rule, but because the vigorous baby seemed so hungry on the fourth day the food was increased beyond the prescribed limits and in three days, as marked dyspeptic symptoms appeared, the food had to be reduced in amount.

From a study of Budin's figures and my own experience, I am convinced that the schedule given is about correct.

Omega.—Weight 2123 grams.

Day.	Weight.	Milk, cc.	Calories.	E. Q.
1	2123	60	61	28
2		95	82	38
3	2094	135	103	49
4	2087	240	177	85
5	2094	275	198	94
6	2084	320	230	110
7	2108	320	230	109
8	2108	240	174	82
9	2080	240	168	80
10	2108	300	230	108
11	2094	300	230	109
12	2094	300	230	109

TABLE 15.

NOTE.—The first few days the total calories were increased by giving sugar-water. Where a discrepancy between the milk and calories appears it is due to the calculated calories in the 5 per cent sugar water.

Now, since there is a gradual increase of daily allowance of milk, and the amount the first day is represented by an energy quotient of 30, the daily increment is 10 calories. Moreover, since there are 670 calories in one liter, any quantity of milk is found by taking one and one half times the calories wanted. Hence, to obtain the quantity desired for any day (during the first ten days) we have the following algebraic equation:

$$x = 3w \div 2000 [30 + 10(a-1)]$$

$$\text{Whence, } x = 3w \div 200 (2+a)$$

Where  $w$  stand for the weight of the infant, and  $a$  represents the day of life.

Therefore, I offer the following practical rules to those who do not wish to calculate the amount of daily feeding on the basis of the energy quotient:

1. Before the tenth day.—*Divide the weight of the infant by seventy (70) and multiply the quotient by the age plus two (2).*
2. After the tenth day.—*Divide the body weight by five (5).*

These are simple and practical rules,—the second rule is that of Budin.

#### THE AMOUNT AT EACH FEEDING.

It is curious how different physicians take different means of determining the capacity of the stomach. Rotch has depended mostly on post-mortem examination of the premature stomach; he reports three cases. One was a fetus, seven and a half month's gestation, weighing 1930 grams and having a gastric capacity of 18 cc. In another case, eight month's gestation, while the fetus weighed only 1230 grams, the stomach could hold 22 cc.. In the third case, gestation thirty-two weeks, weight 1440 grams, the size of the stomach was much smaller, holding only 8 cc. (2 drams).

Voorhees also recommends that the first quantities should be 1 to 2 drams (4 to 8 cc.) and gradually increased.

Perret states that having determined the quantity of milk (method of Budin) it is easy to decide the quantity at each feeding by dividing it by the number of feedings daily. He regards ten feedings as the proper number. Hence, the total quantity divided by ten will give the amount at each feeding. Budin has a very similar rule.

Monti recommends quantities from 20 to 40 grams.

We followed Voorhees' directions mainly, beginning with one-half to two drams (2 to 8 cc.) at a feeding and rapidly increasing. Efforts at larger quantities frequently resulted in vomiting, which is dangerous in such infants.

As there is still so much uncertainty concerning the size of the stomach, considerable latitude must be allowed. I still believe that having decided the total quantity to be given, we best decide on the number of feedings daily and divide the quantity of the milk by this. This is a very practical rule.

#### THE INTERVAL.

As to the interval, no definite rule exists. Rotch and Voorhees feed every hour. Perrett, Budin and Monti insist

on two hour intervals. In fact, Monti finds the hourly feedings of Passini wrong (theoretically?), an infant should not be fed so often and so much. In artificially-fed infants he recommends three hour intervals. How he can get enough food into a premature infant in these intervals is a mystery. Our rule was about as follows:

Infants weighing less than 1500 grams were fed every hour in day time, sometimes less often at night—(20 to 22 feedings daily).

Infants weighing 1500 to 2500 grams received their food every one and one-half hours—(14 to 16 feedings daily).

Babies weighing more than 2500 grams can receive their food at two hour intervals.

Of course, the age of the patient must always be considered.

#### AN EXAMPLE.

The infant weighs 1350 grams (about 3 pounds), 28 week's gestation. How much food should it receive on the third day of life?

Twenty feedings daily. Energy quotient 50, daily calories 66. This equals 100 cc. of milk—each feeding 5 cc.

*(To be Continued.)*

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## The Etiology and Management of Brow Presentations.

By F. J. TAUSSIG, M.D.,

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“**B**ROW presentations have been but little studied because they occur so rarely (1 in 2000 labors) and yet just because they are so infrequent they ought to be considered with greater thoroughness, theoretically, for when they do occur they may put the uninitiated in an embarrassing position and easily lead to misfortune for both mother and child.”

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*Read before the Medical Society of City Hospital Alumni,  
November 3, 1904.*



The above-quoted words of Schatz<sup>1</sup> represent in part my reason for reporting the following case of brow presentation; in part, however, it is because the etiology of my case is of unusual interest and because circumstances suggested a new method of treatment that may be of use in selected cases.

The patient under consideration was a newly married woman, aged 30 years, who had never before been pregnant. The last menstruation took place about the middle of December, 1903. August 29, 1904, at 10 a.m., that is three weeks before her expected time of confinement, the membranes ruptured and within a short time a large quantity of amniotic fluid escaped. Labor pains did not start until twenty-four hours later. They were of good strength and at frequent intervals, but nevertheless it was not until 9:30 a.m. on the following day that the cervix was completely dilated. For four hours the pains continued but the head made little progress. At the end of that time the fetal heart-sound, which had heretofore been strong and regular, began to grow fainter.

It was at this stage that I was called in consultation by the physician in charge. On my arrival half an hour later I found the following conditions of affairs: Maternal pulse strong and regular, 90 to the minute. Pains at frequent intervals but rather short in duration. A contraction ring could be distinctly felt at a point one finger's breadth below the umbilicus. The head was engaged in the pelvis and the back of the child lay to the left. The fetal heart-sounds, which had been heard but a short time previously, had now become inaudible; consequently, all things were prepared for immediate delivery.

On vaginal examination the cervix was found completely dilated and the membranes ruptured. The examining finger came upon a highly-developed caput succedaneum, to the left of which could be felt the large fontanelle. As the finger passed to the right and forward it came upon a ridge which could be distinguished as the orbital, and a prominence which was recognized as the base of the nose. The head was fixed in the pelvis with a large segment already engaged. The diagnosis was, therefore, brow presentation, mento-dextro-anterior.

The lower blade of the forceps was introduced along the left side of the pelvis so as to catch around the occiput. This blade was steadied with the right hand, while the fingers of the left hand were placed against the brow. Pressure upward

was now exerted by these fingers while simultaneously gentle traction efforts with the forceps blade were made in the hope of thus correcting the malposition of the head. In view of the necessity for immediate delivery this method could only be tried a minute. Unfortunately, no assistant was at hand to aid abdominally in this manipulation. It did not succeed in correcting the deflection of the head. The forceps were then applied in the right oblique diameter. When the head reached the perineum the traction efforts were directed upward so as, if possible, to save the perineum. Owing to the extremely critical condition of the child it was impossible to wait for complete dilatation and in consequence the perineal body was torn to the second degree.

The head developed in the usual way. The nasal bridge was pressed against the symphysis, the occiput delivered over the perineum and then the rest of the face expelled. The cord was twisted twice around the neck of the child and so tightly that only one convolution could be freed before the child was completely delivered. There was no pulsation in the cord or fetal heart-beat.

The placenta was expelled forty minutes later in its entirety. Labor, therefore, lasted altogether about thirty hours.

The perineovaginal tear was rather ragged, and for the first five days, post-partum, there was an evening rise of temperature to  $100.5^{\circ}$ , due to localized sloughing of the vaginal wall. The temperature then dropped to normal. The pelvic measurements of the mother, who was only 4 feet, 11 inches in height, were rather small, but showed no deformities. The sacral promontory could not be reached by the vaginal fingers.

The child was somewhat below the average development, weighing approximately 6 pounds. There was, therefore, no disproportion between pelvis and child beyond that due to the presentation of the head by a large diameter.

*Definition.*—There has been considerable discussion as to the proper definition of brow presentation and the difference of opinion as to the frequency of its occurrence can be largely attributed to this inaccuracy. Some authors include therein the cases in which the anterior fontanelle lies lower than the posterior and the brow can be felt but is not truly the presenting part. The Germans call this "Vorderscheitellage." Mueller<sup>2</sup> justly claims that in true brow presentation we should be able to feel the brow as the lowest point, to one side of it dis-

tinguish the large fontanelle, and to the other make out the orbital ridge and the root of the nose. We must also exclude from our classification those cases in which the head is not yet engaged in the pelvis. Here, even if brow and orbital ridge can be felt, correction takes place before the head enters the pelvis.

*Frequency.*—If we take this definition of brow presentation we find most authors giving the frequency of its occurrence as about 1 in 1500 or 2000. Webster<sup>3</sup> states that at Guy's Hospital there were 14 cases in 24,582 labors (1 in 1756). Palotai<sup>4</sup> reports 12 cases in 17,109 births (1 in 1430). In certain districts in Switzerland, however, brow presentations as well as face presentations seem to be far more frequent. Moosmann,<sup>5</sup> of Berne, reports 44 brow cases in 19,725 births, or about 1 in 448.

*Etiology.*—The explanation of this difference leads directly to a discussion of the etiology. Moosmann makes the prevalence of congenital struma accountable for the frequency of deflected vertex positions in these regions. It is readily comprehensible how such a growth would interfere with the proper flexion of the child's head and bring about a presentation of either brow or face. Only a small percentage of the total number of cases can, however, be explained on such a basis. At times it is difficult, if not wholly impossible to arrive at a satisfactory explanation of the cause. That it occurs more frequently in twins may, as Ahlfeld<sup>6</sup> points out, be due to the anterior surfaces of the two fetuses coming in contact and thus mutually disturbing the normal flexed attitude, so that extension is facilitated.

By all authors the children in brow cases are given as below the average in development. Hecker<sup>7</sup> gives the mean weight as 2872 grams. The majority also find a certain amount of contraction in the pelvis and frequent prolapse of an arm. The main cause, however, according to Stumpf<sup>8</sup> lies not in the relation of the bony parts but in conditions of the lower uterine segment interfering with the proper flexion of the head. Webster<sup>3</sup> gives the causes of brow presentations as similar to those of face presentation. He mentions nine possible factors:

1. New growths of the neck or chest
2. Displacement of arms under the chin.
3. Coiling of the cord several times around the neck.
4. Smallness or mobility of the fetus.

5. Hydramnios.
6. Sudden escape of the amniotic fluid.
7. Displacement of the long axis of the uterus.
8. Contractions of the pelvic brim.
9. Certain occipito-posterior cases in which there is much resistance to the descent of the occiput.

Doubtless, in most cases it is rather a combination of circumstances than any one factor that is responsible for the malposition. A clearer insight into the significance of these various factors is obtained if we classify them under the following heads:

A. *Factors interfering with proper flexion of the head*, such as—1, struma; 2, twins; 3, arms under the chin; 4, cord several times around the neck. The last named would be particularly true where the shortened cord passed over the back and thus in addition exerted a backward pull.

B. *Factors allowing greater freedom of motion to the fetus*, thus increasing the opportunity for an abnormal vertex presentation, such as—1, smallness of the fetus; 2, hydramnios; 3, contracted pelvis. Such a pelvis would interfere with the early fixation of the head. Hence the presenting part would float above the brim.

C. *Factors that tend to fix the head in the deflected position* in which it lies at the onset of labor, such as—1, early and complete rupture of the membranes; 2, abnormal rigidity of the lower uterine segment; 3, spastic contractions of the lower uterine segment and the internal os.

With the exception of congenital struma, we must in every case have one of the factors, in Group C, present in order that as the head enters the pelvis the brow remains fixed as the presenting part. In my case the etiology seems fairly clear.

While the smallness of the child, together with the hydramnios, may have assisted in deflection, probably the most important factor was the double coil of cord around the child's neck. With the sudden complete escape of the amniotic fluid the head was firmly grasped in this deflected position by the lower uterine segment and a later correction of the malpresentation thus prevented. Although no special test was made, there must have been considerable rigidity of the cervix and uterine segment, since the patient was a primipara of over 30 years of age.



*Mechanism.*—Even after the brow has begun to enter the pelvis there may be a spontaneous correction of the malposition. This, according to most authors, is more frequently in the direction of a face presentation than in that of a vertex. Where no correction occurs the head may lie in the pelvis

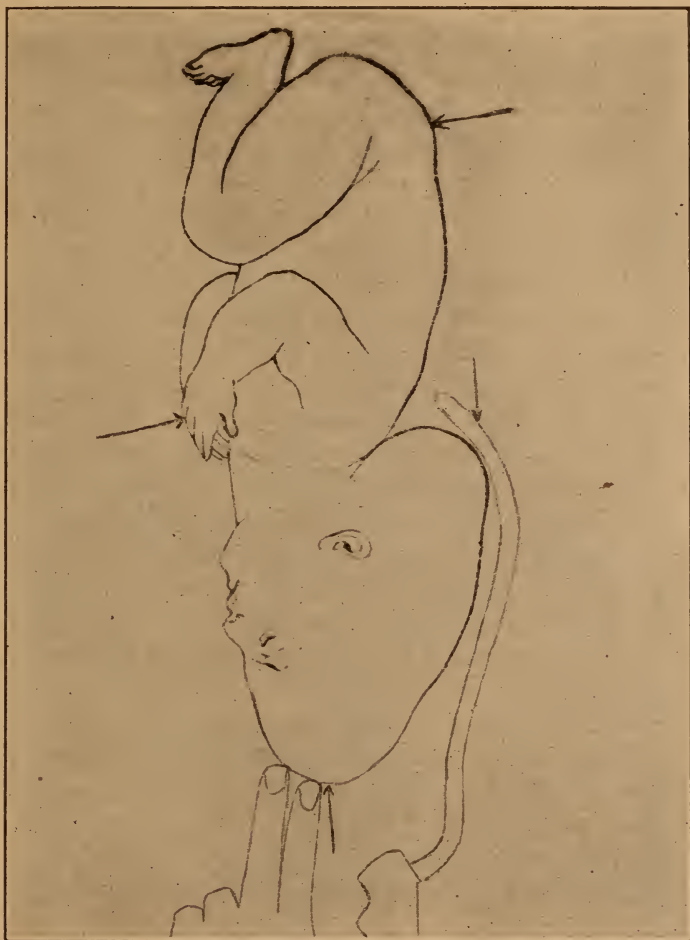


FIG. 1.—Author's Manipulation for the Correction of Brow Presentation.

The arrows in the illustration serve to indicate roughly the point of application and direction of the forces applied to the child's head and body. At the time at which this procedure should be attempted, the deformity of the child's head is not yet as exaggerated as in the illustration, so that the difficulties to be overcome in the manipulation are not as great as they would seem.

transversely and even in a few cases, where the children are small, be born in that position. Occasionally the chin will rotate posteriorly, the occiput anteriorly. The more usual form, however, is the opposite. The bridge of the nose lies against the symphysis, and the occiput is delivered first, then the face. The form of the fetal head in these cases is a very characteristic one, as seen in the accompanying illustration. It becomes more marked in premature rupture of the membranes, owing to the enormous caput succedaneum and, hence, very typical in our case. The caput lies over the forehead, extending from the orbital ridges to the large fontanelle. The forehead is very prominent and square, the mento-occipital diameter being lessened, the fronto-occipital increased.

The duration of birth is usually considerably increased in these cases. Von Steinbüchel<sup>9</sup> gives the average in primiparæ as thirty-four hours, in multiparæ as thirty-one hours.

*Prognosis.*—The prognosis in these cases is certainly serious, particularly for the child. For the mother the greatest danger lies in rupture of the uterus. The maternal mortality is given by Long<sup>10</sup> as 10 per cent, by von Hecker<sup>7</sup> as 5 per cent. Stumpf reports one death from ruptured uterus in 10 cases. Injuries to the soft parts are of very frequent occurrence. Von Steinbüchel gives the proportion of perineal tears as 25 per cent of all cases. Necrosis with resulting fistulæ are occasionally encountered. Infections are more frequent. The morbidity of mothers is given by Knaiske<sup>11</sup> as 36.6 per cent.

The prognosis for the child is certainly very grave. The prolonged labor accompanied by direct compression of the child's head together with the frequency of operative interference (50 to 75 per cent) is productive of an increased fetal mortality, Stumpf reports 6 deaths in 10 cases; Olshausen,<sup>12</sup> 21 deaths in 41 cases; Palotai, 41.6 per cent mortality; Knaiske, 36 per cent.

*Treatment.*—The treatment in brow cases consists, where possible, in a correction of the malpresentation, changing it into one of the more favorable forms, face or occipital. This can be attempted in two ways: 1, by posture; 2, by manual procedures. The former method is cited by Kolischer<sup>13</sup> as occasionally effective. The patient lies upon the side toward which the chin points. This increases the flexion of the head, producing a face presentation. By this procedure there is, however, danger of producing a transverse position.

Of the methods of manual correction the best known is that of Thorn<sup>14</sup> ("Thorn'scher Handgriff"). This author with the internal hand tries to bring down the occiput, while the external one pushes backward the chest of the child and an assistant pushes forward the breech. In this way the child may occasionally be brought to assume a correct attitude.

Benjamin<sup>15</sup> recommends placing the patient under an anesthetic and then forcibly pushing back the head from its impacted position in the pelvis. When thus freed, the presentation can be corrected.

Where manual correction fails and delivery has not taken place spontaneously, it will usually soon become necessary for the sake of either mother or child to aid the progress of labor. If the head is still movable and the condition of the uterus permit it, most obstetricians, among them Williams<sup>16</sup> and Runge<sup>17</sup> recommend version.

When version is contraindicated, we must resort to forceps but they must be applied with the greatest care to avoid injuries to the child and the maternal soft parts. It ranks among the most difficult of such operations. Owing to the unfavorable diameter presented the blades are particularly liable to slip. When the head has reached the perineum, traction should be made upward in order, if possible, to avoid a tear.

Lauro<sup>18</sup> was the first one to suggest symphysiotomy for these cases. This would, of course, be permissible only if the child were still alive and manual correction or version impossible. Wallich<sup>19</sup> reported 7 cases of symphysiotomy for this indication with 2 fetal and no maternal deaths. If the child be dead and there be difficulty in delivery, the operation is, of course, craniotomy.

One word, in conclusion, as to the method tried in my case to correct the position of the child by means of a forceps-blade and the fingers of one hand. During this manipulation I had the impression that considerable flexing power could thereby be obtained but did not feel justified in persisting in the efforts owing to the extremely critical condition of the child. It might, in selected cases, meet with better success. Where the hand can be introduced far enough to reach around the occiput, doubtless Thorn's procedure possesses the advantage of greater leverage. But where the head is already impacted in the pelvis and any attempt to push it out of the

pelvis would be attended by the risk of a rupture of the uterus, my procedure might be given a trial. As already noted the blade corresponding to the side of the pelvis toward which the occiput lies, is slipped around the occiput and held in place. Then two or three fingers of the other hand are introduced into the vagina for the purpose of exerting pressure upward on the brow, while with the forceps-blade traction is made downward. In order that the latter do not slip off, a certain amount of counter pressure must exerted laterally by both fingers and forceps-blade. An assistant should simultaneously exert pressure abdominally to push the chest of the child backward and breech forward. In this way force can be applied at four points to correct the abnormal attitude.

Even if the indications were such that a forceps application must be made immediately afterward, if the presentation had thus been previously corrected, the instrumental delivery would be attended by far less risk to mother and child, owing to the lessened diameter thus obtained for the passage of the child's head through the pelvis.

I, at one time, thought of testing the method on a manikin but came to the conclusion that this would be valueless. In brow cases the fault usually lies in abnormalities of the soft parts and these relations as well as the altered shape of the fetal head could never be imitated on the manikin.

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## Left Hemiplegia.

By HORACE W. SOPER, M.D.,

ST. LOUIS, MO.,

THE patient, J. C., aged 27 years; occupation, Superintendent of Street Construction Work. *Habits.*—Occasionally indulges in alcoholics to excess; uses tobacco in moderation. No history of previous serious illness or injuries; no history of syphilitic manifestations.

The patient entered the hospital on the evening of September 8, 1904. He was unconscious, and examination revealed the presence of a left hemiplegia. The left side of face was paralyzed, the left arm complete, and rigidly contracted, the left leg partially paralyzed. The Babinski reflex was well marked on the left side, absent on the right. The tendon reflexes on both sides were exaggerated. No conclusion could be arrived at in regard to sensory disturbances. The head was turned to the side, the eyes diverted toward the left side. Pupils somewhat dilated and responded feebly to light.

The following day the patient aroused and was able to take fluid nourishment, but very soon relapsed into coma. Urine and feces passed involuntarily. During the next ten days the coma became gradually deeper. Temperature ranged from 100 to 102°. The muscles of left arm remaining rigid. A contusion was found in the scalp just behind the *right* parietal eminence, and a history of a fall obtained, occurring August 28th. He complained of pains in the head after this fall and the paralysis came on eleven days later. A diagnosis of subdural hemorrhage was made, based on the following grounds, viz.:

1. History of head injury with paralysis coming on a week or so later.
2. The early rigidity of the muscles of the affected side.
3. The youth of the patient and the absence of arteriosclerosis.
4. Absence of any history or evidences of syphilis.

The operation was performed by Dr. J. S. Hixson, Sep-

tember 18th, ten days after the paralysis came on. First, the trephine was introduced near the contusion, no fracture was discovered. The dura was incised and no clot found. The second opening was then made over the center of the motor area with the same result. Although no blood clot was found, there was marked bulging of the brain after incising the dura, showing evidence of compression. A drain was left in the incised dura. The day following the patient was much brighter and continued to improve until the third, when fever reappeared and pulse became rapid. This was found to be caused by an infection of the posterior wound. This soon subsided and the patient recovered very rapidly, leaving the hospital ten days after the operation.

*Status presens.*—Very slight paresis of muscles of the left side of the face. Arm and leg almost as strong as ever. Tendon reflexes increased on left side. Posterior wound not quite closed. General condition good.

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## SOCIETY PROCEEDINGS.

### MEDICAL SOCIETY OF CITY HOSPITAL ALUMNI.

*Meeting of October 6, 1904; Dr. Charles Shattinger,  
President, in the Chair.*

Dr. S. A. KNOPF, of New York, delivered an address (see page 129, this issue) on the

#### Possible Victory Over the Great White Plague.

##### DISCUSSION.

Dr. WILLIAM PORTER appreciated the opportunity of adding his indorsement to what has been said. After listening to Dr. Knopf no one would wonder that he had become such a leader. Just beneath us 50,000 men on each side in the struggle between Russia and Japan, have already yielded up their lives, yet, in the United States every year 200,000 die the victims of the great white plague. In St. Louis alone according to present mortality rates there will be of those now living, victims to the same extent as in this great Oriental war. Dr. Knopf has spoken very earnestly of the combat through individual and municipal work, but he had not told them of his own work. In

New York, through the efforts of Dr. Knopf and his confreres, there has been a reduction of 40 per cent in the mortality from tuberculosis. This has been accomplished through improved sanitation, and by the application of the laws already on the statutes. The same application can be made here in St. Louis. There has already been an attempt to do something in St. Louis. Sometime ago a permanent organization was effected. That organization work is largely relegated to committees. On the publicity committee, headed by a well-known physician, there is the editor of each daily paper in the city. The sanitation committee is headed by a sanitary expert and on the finance committee are some of the best practical business men in the city. The chairman of these committees form the executive committee. There is a good deal of ground to be covered and it must be done well; their purpose is this: first of all they will have the aid of the Board of Health in the matter of inspection and of the great charity institutions in inspection and registration. He believed that registration could be accomplished in a manner that would not be objectionable. Physicians will be interested in different parts of the city, each giving an hour or so twice a week to patients who may come to them with a card from these charitable institutions. Then they hope to have a dispensary. By educational methods, by illustrated lectures, by talking in the universities, etc., it is hoped that enough interest can be aroused to bring about a result equal to that accomplished in Eastern cities. If so much is done it will mean the saving of 40,000 lives; if they can save, say, half of 40,000 lives, it is a great thing to do. If one will go down through the Ghetto district he will understand the need of clearing out of what is possibly the greatest foe to life. The sanitarium can only be a school, an illustration, as it were. In the consumptive hospital, that is found to be the case; the patients come to them in such extreme condition that though they can not refuse to take them, their condition can be only ameliorated, but the patients' friends can be taught how to prevent the disease, how to guard against infection and how to care for patients in the earlier stages. The work of the Association has been done quietly until they were in a position to ask the public to join with them heart and hand; there can be objection offered to co-operation; no monetary influence can be against it; there is everything in favor of it, nothing opposed to it; if the spitting in street cars could be stopped it would be a long step in advance, it is a duty to have the law enforced. If

physicians will go at this idea rightly it will be possible to limit the disease; if this work is not carried on as it should be St. Louis will be an example to other cities of negligence and reproach. When the news comes to us from Philadelphia and New York that they have done so much, it should be a guide and encouragement to the profession of St. Louis.

Dr. WM. T. CLUTE, Schenectady, New York, said that for the past nine years he had been interested in public health matters in the city of Schenectady. The city is rapidly growing, within the last 15 years having increased in population about three times, so that there are now about 56,000 people. The people have come to consider tuberculosis as they do scarlet fever or diphtheria and when a patient dies they go to the Board of Health and ask to be disinfected. Even the landlords do that, thinking they can rent their houses better. The speaker considered the points brought out by the lecturer of the greatest interest to every one connected with the preservation of the public health. When the people are once educated up to the idea of the germ theory of tuberculosis there will be no trouble in the control of it. If the people understood the danger of the tuberculosis germ as they do the diphtheria germ physicians would have less trouble. As it is, if the patient uses in public a method of treatment for the prevention of the infection of others, if he uses a sputum cup, for instance, then the public wants to get away. If some means could be devised to do away with that it would be a long step in the right direction. In Michigan, when a physician reports a case of tuberculosis, letters are sent out to the family and to the neighbors instructing them how to take care of themselves. In the city of New York there is a contagion hospital where free examinations are made, but Schenectady has not as yet taken hold of that.

Dr. ALBERT MERRELL stated that the speaker of the evening did not need his indorsement. The care of the patient personally and of his immediate surroundings, together with the education of the patient and his friends, to protect those with whom he might come in contact, are the essentials of the case. In reference to the public press, its influence is greater far than most people realize in matters medical. To show that the managers of the St. Louis press have a genuine interest, Dr. Merrell stated he went personally to all the editors of the papers of St. Louis and without exception they agreed to act on the committees and to give any reasonable space to matter presented to them on the



prevention of tuberculosis. If the opportunity they have offered is utilized great benefit will be derived. Someone has said that the fight against tuberculosis will have to be made in 98 per cent of all cases in the homes of the patients. That statement was emphasized by the statement of Dr. Knopf as to the large degree of poverty among such patients. Their situation is such that it is almost impossible for them to seek dispensary help. Many of them would never go near a physician for fear of a fee. It is that large class that the societies will seek to ferret out and to assist. It must be done with great delicacy, and at the same time with whole-heartedness and generosity. It will require a large amount of money. The patients and his friends must be educated. Even the sanatorium will have to be, as Dr. Porter said, largely an educative institution. Education will be the chief work for many in the sanatorium.

Dr. GEORGE HOMAN said that when the story was simple the moral was plain. The facts had been so clearly set forth that there was no mistaking their import. It only remained for us to organize in the most effective manner, and to educate the public in this matter. He was glad stress had been laid upon the fact that these sanatoriums and dispensaries are educational in their character. The benefit to the sufferer, of course, is inestimable but their advantage to the public as teaching institutions can hardly be overestimated, and our efforts, so far as immediate work is concerned, should be to procure the establishment of a sanatorium by the State. He believed they were all pretty well aware of the need and that they could push the work along and all co-operate in forwarding this movement to a successful conclusion.

Dr. L. H. BEHRENS was very glad to have heard Dr. Knopf's remarks. He felt that all had been said that could be said upon the subject but he had a point in mind for which he believed that he and other physicians deserved censure, and that was the hesitancy they display in telling their patients that they have consumption. If the patient has consumption he is told various little hygienic measures he must carry out, but he will become careless in carrying out the instructions. He said that for this reason he had recently made it a practice to break it gently to his patients. The first patient he feared he had been too harsh with. The patient could not accept the truth and the fright was something terrific. He resolved that he would wait along time before he told another, but the patient carefully followed

instructions and began at once to improve. Talking of duty, he had been very much surprised two years ago in reference to the spitting ordinance. When it came up three members of the Civic League were present and one physician and it was by the hardest kind of work that it was made a law. He happened to be present that evening because, as a member of the profession, he was interested. Dr. Behrens was glad to have a better insight into the league Dr. Porter had formed and would be glad to work right along those lines and he believed the press should be kept informed on the subject. The treatment of consumption consisting in prevention rather than cure, the people must be educated on straight and simple lines.

Dr. PORTER, replying to an intimation made by the speaker, disclaimed the honor of being the sole agent or organizer of this league, and asked that every physician present give his hearty indorsement to this movement. The work is large enough for all of us, and each is needed in it.

Dr. C. A. SNODGRAS called attention to the fact that in his examination of the numerous specimens of sputa he has been endeavoring to tabulate the information that he can secure in connection with the specimens. Accompanying each specimen there is a printed slip the physician is supposed to fill out. In the next annual report there will be shown all the facts collected from about one thousand cases. Those facts are based upon the information supplied by the profession. Though such data is not as valuable as that coming from a hospital, it was thought wise to show just what the medical profession is doing along this line. It will contain such information as the answers to the following questions: What is the earliest possible time the bacilli will be found in suspected cases? In how many cases is there a family history of tuberculosis? In how many cases is there no such history? Dr. Snodgras wished to impress upon the medical profession the aid they could render in collecting such information. The doctor is a busy man and it is with difficulty that he can get accurate information. His object in calling upon the city bacteriologist is to know whether a given specimen contains tubercle bacilli and often the blanks are not filled or only partly. The speaker felt that it was due to science that such information be collected and that the physicians should attempt to give the data asked. If the profession would give the data undoubtedly much valuable information would be acquired.

The PRESIDENT said regarding Dr. Behrens' dislike telling patients

they have tuberculosis, that he believed all physicians disliked to tell a patient that he has a dangerous malady, but that he made it a rule to adhere strictly to the principle that it is a duty to tell patients what ails them, barring only an occasional exception where the imparting of such information will prove an injury, and he believed such cases very rare indeed. Not only in consumption does the profession err in not telling patients the truth as to the diagnosis; a great deal of the ignorance of the laity, a great deal of the abuse of patent medicines could be laid at the door of the profession because they do not take pains in explaining matters fully to patients. He had always held that a patient coming to him, came to him as an expert in a certain line, and that he was paid for the truth and unless he gave the patient the truth he was not giving him an equivalent of his fee. If he hurts a patient in telling him what ails him he has done no more than when he hurts him in lancing his finger. In each instance it is done for the patient's good. He tells his patient that he is sorry to say he has consumption, but that he is happy to say that the view regarding consumption has undergone a change, etc., and in the majority of cases the patient is converted into an intelligent helpmate of the physician. Dr. Shattinger regarded this crusade against consumption as of a higher significance than merely a step in advance in medicine. It showed the growing assendency of the principle of responsibility—the spirit of the words, “I am my brother's keeper” was the foundation of this movement. Only as each individual shoulders his responsibility can the disease be conquered.

Mr. F. G. EATON, President of the St. Louis Society for the Prevention of Tuberculosis, and Chairman of the Special Committee on the Prevention of Tuberculosis of the Civic Improvement League, said that he had enjoyed the popular side of Dr. Knopf's lecture and thought he had understood the medical side of it. The Civic Improvement League is very much interested in this work of prevention. It is the aim of both the Society and the Civic League to mitigate the disease and cut down the number of deaths, and they have the duty of raising the funds for the work. The question is how to do it. The public must be solicited and the doctors could be of great assistance. The physician's work among his patients would mean a great deal in the advancement of the undertaking, especially if he would say that the Society stood for a good thing, that it would be a good thing to belong to the Society and a good thing to subscribe to its and the

League's special work of prevention. Mr. Eaton asked the physicians to say to all their patients that if they wanted to spend their money wisely and in real public charity to subscribe to special funds of the Society of, and of the League for the prevention of tuberculosis. A special effort must be made to raise money, for without funds little good can be accomplished, as the education of the public on the question of preventive measures requires much in the way of publication, lectures, etc. The key to the door of success in "prevention" seems to be public education.

Dr. KNOPF, in closing, said that he thought the audience had had enough of tuberculosis for one night, and he would be as brief as possible. He regretted that Dr. Snodgras had gone for he had something to say regarding that gentleman's statements. To Dr. Knopf it seems important not to wait with the diagnosis of tuberculosis until the discovery of the bacillus in the sputum for then the disease has already progressed to the stage of disintegration of the tubercles. Again, even at that stage it is often necessary to have numerous specimens to find the bacilli. In other words, while the presence of the bacillus in the pulmonary secretion is an absolute proof that we are in the presence of tuberculosis, the absence of the bacillus does not mean the contrary when physical examination indicates the presence of the disease. Even the relative number of bacilli in a given specimen can not be considered of great prognostic value. A recovering patient may dislodge, accidentally through a coughing spell, a small particle of tissue full of bacilli about to incapsulate, and the specimen of sputum examined shows a very large number of bacilli; again, a dying patient may have a bronchorrhea, and the diluted sputum specimen may show no bacilli at all.

Regarding the supervision of the consumptive poor by nurses, the doctor stated that all patients applying to the Clinic of the Health Department of New York City were visited by District Nurses who instructed them concerning hygiene and a proper mode of living. Patients who had no private physician were also visited by sanitary inspectors. The New York Board of Health was, to the best of his knowledge, the only authoritative body in the world which had a right to remove tuberculous patients from their unsanitary environments to a city or country sanatorium.

He used the word sanatorium and not sanitarium advisedly, for he preferred the word sanatorium. Brehmer, the founder of the first



institution of that kind, called it "Heilanstalt," which means a healing institution; and the word "sanatorium," from the Latin *sanare*, to heal, gives certainly a better equivalent to the German word than the word "sanitarium." This latter word is derived from the Latin *sanitas*, health, and is usually employed in this country to designate a place considered as especially healthy, a favorite resort for convalescent patients, or an institution for the treatment of mental or nervous diseases.

In such sanatoria the patients are taught the best means to prevent infecting others and reinfecting themselves, also what to do and what not to do to accomplish their cure. The result of these precautions is that the well-conducted sanatorium for consumptives is the best place not to catch pulmonary tuberculosis. Thus, it can be said that a sanatorium is not a danger to the neighborhood; nay, it is even a blessing. In the two German villages, Goerbersdorf and Falkenstein, which surround five of the most flourishing sanatoria, the mortality among the villagers had been reduced to one-third of what it was before the establishment of the sanatoria. The explanation of this fact is to be found in the voluntary, or even involuntary, imitations of the cleanly habits of the inmates of the sanatoria by the villagers.

The essayist indorsed most highly the eloquent and beautiful remarks of the President, that the antituberculosis crusade meant the coming of a new and better social era for mankind. Since tuberculosis attacks rich and poor, the high and the low alike, life in the sanatorium does away with cast and class. The disease itself seems to render the hard hearted more gentle, the ungenerous rich more generous. Dr. Knopf said that he wished to close with an illustration showing the compassion of the rich consumptive for the poor. The sanatorium at Falkenstein is mainly frequented by wealthy patients. After it had existed for a few years the thought ripened among the patients that they wished to do something for their fellow sufferers without means. The result was the creation of a daughter institution at Ruppertschain, established by the generosity of the rich consumptives at Falkenstein.

He closed with an appeal to American philanthropists, who are so generous in the establishment of institutions for learnings, that they may now consecrate some of their wealth toward the establishment of sanatoria for the consumptive poor. If any epidemic, such as yellow fever or smallpox, should threaten to invade us, all the necessary

money would be forthcoming, but the rich have become so accustomed to the presence of consumption, that there is a sort of indifference toward this malady which, however, kills many times more of their fellowmen than any other infectious disease.

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*Meeting of November 3, 1904; Dr. Charles Shattinger,  
President, in the Chair.*

Dr. HORACE W. SOPER presented a case (see page, 175, this issue) of

### **Left Hemiplegia.**

#### DISCUSSION.

Dr. JESSE S. HIXON had not come prepared to discuss the case. He had been called upon by Dr. Soper to examine the patient and had found the paralysis Dr. Soper had already described. The patient was trephined, the membrane incised and the wound drained. He had an infection of the posterior wound, which was infected before the operation. The improvement after the operation was very marked. The next day he could speak and open his eyes and began to regain control of the muscles of the bowels. He left the hospital in about ten days after the operation. There was still a little infection of the posterior wound.

Dr. M. A. BLISS said that often when such a case was seen sometime after the accident it was difficult to be certain as to the exact conditions. In this case, the fact that they did not find the hemorrhage, and the fact that there was still a slight hemiplegia, would indicate that the lesion was deeper. He had recently seen a man of 65 years who fell from a street car. He had a fracture extending into the base at the right side of the occipital bone. After an operation he was considerably improved, but died five or six weeks after the operation of edema of the brain. Post-mortem showed the tips of the frontal and temporal lobes where they dipped most deeply into the base of the skull, almost pulpified. The upper part of the brain, over the vault, was uninjured, except at site of fracture. This man had a hemorrhage following the injury which gave him the capsular form of hemiplegia. It was still quite evident, but he would doubtless recover entirely.

Dr. GEORGE GELLHORN read a paper (see page 142, this issue) on

**The Early Diagnosis of Uterine Cancer.**

Dr. F. J. TAUSSIG read a paper (see page 166, this issue) on

**The Etiology and Management of Brow Presentation.**

DISCUSSION.

(The speakers discussing both papers taking them in their order).

Dr. H. SCHWARZ indorsed every word that Dr. Gellhorn had said and hoped that his paper would find a wide circulation. For years he had made it habit not only to have every suspicious case examined but to have the slides on record, so that in case the patient should go into other hands or leave the city and some other physician would want a record of her previous condition, it would be possible to supply it. Physicians owed that in part to their patients and in part to themselves. For example, if a woman of fifty had had a flooding spell and had been curetted and the microscope failed to show evidence of carcinoma and if the flooding recurred later and there was a suspicion of carcinoma, it would be to the advantage of the physician to be able to refer to his slides to prove the condition at the former examination.

As to Dr. Taussig's paper, such cases were exceedingly rare. He had seen only one such case where the shape of the head illustrated in the drawing was attained. Brow presentations were perhaps more dreaded than they deserved to be. Many students and young men thought brow presentations were more frequent than was really the case, and that they called for more activity. In cases where the physician had charge of the patient long before delivery, face and brow presentations could be avoided. Most of those cases originated at the very beginning of labor and were due to the position of the child which was such that when labor set in the occiput escaped into the right or left iliac fossa. In such cases, if they were examined a month or two before delivery it would be possible to correct that. In most of the cases seen where the head was not engaged and the condition was allowed to go on until the membranes ruptured, the head was then brought down into a faulty position and was fixed there by the severe contractions of the womb, and a face presentation resulted. In

regions where there was a good deal of pelvic contraction, face, and consequently, brow presentations were more frequent; here they were less common. As to the treatment of such cases, he had always thought that face presentations should be let alone. Very few cases came under observation where the head was still movable. He should prefer to perform version if the head was perfectly movable, but in most cases he preferred to leave the case to nature and wait until either the brow or face had come down and rotation forward had taken place in a degree and the forceps could catch the head from side to side. The danger to the perineum was always great in such cases. So far as the application of the lever or one blade of the forceps was concerned, in a proper case it might be successful but in those cases that had been left alone so that the head had become impacted tightly in the pelvis, no lever could change the conditions.

Dr. CARL FISCH had been much interested in Dr. Gellhorn's paper, and in the intelligent and clear way in which he presented his views. There were one or two points that he wished to take up, and the first was the introduction to Dr. Gellhorn's paper, in which he seemed to take the position that the lately established methods for the investigation of cancer had brought the cancer problem to a new stage of development. In this he did not agree with Dr. Gellhorn. There were cancer laboratories and societies using yearly hundreds of thousands of dollars. They had been in existence six to eight years. What had been the result? No one was a step farther in his knowledge of cancer than he was before. The statistics had been made more complete, but as to the essential nature the investigators of today knew no more than their forefathers knew. A member of the English Cancer Commission had expressed that view, saying that so far no means existed to get at the bottom of the cancer problem, that new means of research must be found, perhaps accidentally discovered, to enable us to learn more of the condition. The second remark concerned the early microscopic diagnosis of the disease. Dr. Gellhorn had explained that clearly, and he only wished to mention some of the difficulties connected with the investigation. In the first place, it had been, and still was, customary in examining uterine curettings to use one or two little fragments. It was necessary, in order to be sure, to have examined every little fragment of the material. Objections had been raised to that on the ground that it required a great deal of time but he had never found it tedious. That, of course, the microscopical



examination did not always give the proof was easily explained for reasons that were familiar to all. But what was carcinoma? How could carcinoma be microscopically diagnosed? In going over the text books it was all very nicely explained, and one was told that this was carcinoma, and this other was not. But in practice that would be found not always so easy to apply. There were a number of cases where pathologists hesitate to express the suspicion of malignancy. In such cases he thought it would be better to operate on the base of a suspicion than to allow a case to go on to a complete development of the disease. He mentioned a case in which he had been furnished a small piece of portio-tissue for examination. He found a peculiar epithelial proliferation. Of course, such epithelial proliferations occurred which suggested malignancy, yet, were due to nothing more than the effects of inflammatory processes. In this case, had he gone by the text-books he would have pronounced it an abnormal hypertrophy, but he reported his suspicion that the condition was malignant. The suspicion was not regarded. The case was allowed to go on, and two months later he received another piece from the cervix showing a typical epithelioma. It had then involved the whole cervix; hysterectomy followed, but the woman was now dying of metastasis. He most earnestly and seriously advised the examination of all uterine curettings; the way, which in Germany, lately has been taken in this direction, ought to be followed with us, too. The frequently-made objections against the value of microscopic diagnosis are based on a lack of knowledge on the principles involved.

Dr. HUGO EHRENFEST said that there could not be any doubt but that Winter's dictum has proved true, that not more extensive operations but earlier diagnosis would guarantee better results. The microscope is the best aid in securing the early diagnosis. We can, however, not entirely rely upon it. It is of positive value only if the findings are conclusive, negative results of the microscopical examination of scrapings do not exclude the presence of a cancer. In certain locations the carcinomatous tissue if limited to a small area may evade the curette. The scrapings may show a histologic picture that is suggestive but not conclusive for malignancy. In the speaker's opinion the possibility of such deficiencies in the microscopical diagnosis should be duly mentioned in all those papers that are written for the purpose of emphasizing the value of the microscope in the early diagnosis. Such a practice would deprive those who antagonize the micro-

scope (probably because they do not know how to use it), of their good opportunity to quote those comparatively rare instances in which the microscope has failed to establish the diagnosis.

When of late the advocates of the abdominal route published their better results with the more radical operations, they have, in the speaker's opinion, neglected to consider the fact that they have undoubtedly operated upon a comparatively larger number of cases in an early stage of the disease. Much good has been achieved in the last few years in this respect by a systematic propagation of a better knowledge of the earlier symptoms of uterine carcinoma.

He was much interested in the etiology of Dr. Taussig's case. He, himself, saw a case in which also the winding of the umbilical cord around the neck was responsible for a face presentation. One point which Dr. Taussig probably intentionally omitted in discussing the therapy is the perforation of the living child. There can not be any doubt that under certain conditions brow presentation may necessitate this operation.

Dr. WILLIAM S. DEUTSCH believed, as Dr. Fisch had stated, that it would be a very good thing to have the uterine scrapings in every case examined even when there was no suspicion of carcinoma. If that could be done many cases might be saved.

Dr. NORVELLE WALLACE SHARPE expressed his personal appreciation of the papers, but he thought that if the force of the finger tips was presented in the direction of the arrow in the drawing that the head would not be changed. In other words, the head was correct but the position of the arrow quite wrong.

Dr. FRANCIS REDER said that while we were always looking for the earlier symptoms of carcinoma, yet, when a positive diagnosis was made the question was how much good could we do the woman. If we could give her relief for from three to five years, we could congratulate ourselves. He could not agree with Dr. Gellhorn on having operated regardless of the revelations of the microscope. He believed that when everything had been done with no relief to the patient that ablation should be performed even when there was no evidence of malignancy at the time, simply because one could never know a condition of malignancy manifest itself.

He thanked Dr. Taussig for presenting a paper of such value to the Society, for such papers were very rare in this Society. In his experience he had had but one similar case, and it was classed a face pre-

sensation. In that case the right eye was closed by a large swelling.

\*Dr. Ehrenfest had mentioned a very important point, that of deep anesthesia. However, he would not apply deep anesthesia with the expectation of being able to push back the head, but with deep anesthesia he hoped to gain complete relaxation. The danger to the perineum had been mentioned. He believed that in such a case one should proceed with delivery and accomplish it as rapidly as possible regardless of the perineum. In deep anesthesia the genupectoral position would be given some preference, for if any advantage could be gained by change of position it would be with the patient in that posture.

Dr. FRANK HINCHEY, discussing Dr. Gellhorn's paper, called attention to the fact that so many members of the profession treated many of these cases of early cancer as they would a menorrhagia. He had recently refused to treat three patients in this manner. He had insisted on the necessity for a curettement. They had the symptoms of cancer. Two of those patients he subsequently had occasion to hear of indirectly. They were being treated by physicians who were not quacks, yet, they were "treating" simply for menorrhagia—none of them had been curetted. He told each of them that there was no way of deciding the possibility of cancer without curetting, and he had pictured all the horrors of the danger that threatened them. He understood that one of those patients was said to be "too weak" to stand the chloroform. It simply showed that there were men who were either ignorant or unprincipled. There was great need of education of the profession. At least two of these men were not ignorant men, by any means, and he believed they were simply unscrupulous.

Dr. Taussig's case of brow presentation was very interesting. Last summer he had had a patient who had complained all through her pregnancy of a great deal of pain in the lower quadrant so that she had spent much of her time in bed. The movement of the child seemed to be tumultuous and increased the pain. The child, from its very active movements, could easily have gotten into malposition at the onset of labor. When he saw her the os was well dilated and he could get the fingers pretty well down on the superior maxillary. Seeing that she would have to have anesthesia he 'phoned Dr. Gettys that he might be with him to give her the chloroform. The membranes had ruptured and the pains were coming rather slowly. She was placed

in the Trendelenburg position thinking it would be favorable for version as the uterine pains were not very strong and he thought he might prevent the leakage of the amniotic fluid. He saw the futility of attempting to drag down the occiput but wanted to prevent the sweeping back of the chin to the hollow of the sacrum and thought that if he could get in the hand that he could save the turning of the head. The case continued that way with the patient in the same position and he was enabled to push the brow up as he supposed thus aiding nature to convert into a face presentation with chin under the symphysis; although he could not say whether he had made any change in the position or not. The woman struggled so that he really could not tell whether he was pushing the child or her, she having refused anesthesia. He thought he might have rendered some little service. However, the case terminated as a face delivery. Whether the Trendelenburg position helped or not he did not know. It would at least favor the retention of amniotic fluid in such a case, as the patient was not having strong pains.

Dr. J. C. FALK said that his own experience emphasized the impossibility of rotating the head after it had become as firmly impacted as the drawing indicated. If one could satisfy himself that there was enough amniotic fluid there he might be justified in attempting to push the head back, otherwise there did not seem to be anything to do but to leave it to nature or put the forceps on.

Dr. M. J. LIPPE said that he had been requested by Dr. Fisch to report a case in which the uterus had been removed some eight months before, and asked Dr. Gellhorn to present the specimen. The case itself was a sermon on the early diagnosis of carcinoma of the uterus. The patient was passed 60 years of age, and a well-preserved woman. For some time before consulting Dr. Lippe there had been a slight bloody discharge and some pain. He found a very small uterus that had undergone senile atrophy. After observing the patient for several weeks he advised that she be curetted, which was done and the specimen was sent to Dr. Fisch for examination. The cervix was apparently normal and the uterus small. An experienced gynecologist saw the woman with Dr. Lippe and said that he would let the woman alone, but Dr. Fisch reported that the curettings indicated an adenocarcinoma and patient was operated upon, and made a perfect recovery and was still in excellent health. Within the fundus of the uterus there was a point the size of the thumb nail that was a carcinoma. It was an



adenocarcinoma that had not spread. He wished that Dr. Taussig would say whether he used traction or whether he used the blade of the forceps as a lever.

Dr. GELLHORN, in closing, said that he had no criticism to offer for he had had no experience with the condition in question but the paper of Dr. Taussig had been very instructive to him.

He thought the suggestion of Dr. Schwarz to keep the slides was a very important one and in addition to the practical advantage of the protection of the patient and physician, the slides would be of great scientific interest. If all negative slides were kept it would be possible to state, in a great many cases, the exact date of the beginning of the carcinoma. He did not quite share the pessimism of Dr. Fisch in regard to the investigations being made in this and Continental countries. While it was true that nothing of great practical value had been achieved, there was every reason to hope that that might be accomplished in the near future, and in the meantime any light on the subject was welcome. Dr. Fisch, in speaking of the examination of the scrapings, had remarked that in some instances the typical changes of carcinoma might not be present but that there might be changes that would give a hint of the possible later development of carcinoma, and he emphasized that every particle of the scrapings should be examined. But if he understood Dr. Fisch rightly, he had not said that the entirely negative outcome of the examination should not prevent the examiner from passing judgment. That was a point Dr. Ehrenfest brought up and on which he disagreed with Dr. Ehrenfest. Dr. Ehrenfest had said that if one did not find gonococci in a specimen that did not indicate that there was no gonorrhea. The logical consequence in any given case would be, that the physician would never be able to give a definite judgment as to the presence or absence of the disease. It is true, if no evidence of cancer is in a first examination, then judgment must be suspended until a second examination, but if, after two examinations, there is still no evidence, then one has no right to insist that there is a carcinoma, and he has no right to extirpate such a uterus. Dr. Reder had referred to the case in which Dr. Gellhorn had operated in spite of the negative outcome of the microscopic examination and had favorably commented on the action taken by Dr. Gellhorn. He, Dr. Gellhorn, however, would never again extirpate a uterus only on account of clinical symptoms if repeated microscopic

examinations did not reveal cancer. Such a practice would be too dangerous to the patient to be justifiable. Operations, and particularly major operations, such as hysterectomies, should not be done unless strictly indicated.

He would be very glad to respond to Dr. Lippe's request to present the specimen referred to, (Demonstration) Under the microscope it is plainly visible that in one small area of the inner uterine surface the glandular formations suddenly dip down deeply into the uterine muscle thus exhibiting two signs of malignancy: Proliferation and extension into foreign tissue.

Dr. TAUSSIG, in closing, said that one of the specimens under the microscopic was from a case of unusually early carcinoma of the cervix. The patient was 49 years of age and had come to the Gynecological Polyclinic for treatment without any of the symptoms of carcinoma. She had some dragging sensation and some vaginal prolapse. At her second visit he noticed an eroded area about 1 cm. in diameter, near the external os, he applied some 4 per cent silver nitrate and that it bled. On her third visit he snipped off a small piece for examination and found what he considered to be one of the earliest cases of carcinoma. It extended only about 2 mm. into the cervix.

As to the diagram, he wished to offer some apologies. It represented the altered shape of the head in brow presentation but that altered shape was acquired after the head had passed through the birth canal. The head did not show such alteration before it had passed through the canal, and the manipulation described is hence not as difficult as the diagram would make it appear. As to the arrow, that was to show that the pressure should be made toward and against the force of the forceps blade on the other side. The blade was to be drawn downward and somewhat inward and to be used as a lever and for traction. As to the suggestion for using deep anesthesia for such cases, he had read the paper of Dr. Benjamin's but thought it could seldom be applied because of the danger of rupture of the uterus. In his case the contraction ring was within one finger's breadth of the umbilicus and any pressure of that kind would have been fraught with danger to the mother.

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## OBITUARY.

Dr. William M. McPheeters, the oldest St. Louis physician, died March 15, 1905, at his residence in this city, aged 89 years. A biographical sketch of his life will appear in the April number of this Journal.

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ORIGINAL CONTRIBUTIONS.

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Fallacies, Aims and Methods of Hydrotherapy  
in Fevers.

By SIMON BARUCH, M.D.,

NEW YORK CITY.

THE axiom of Hippocrates, "Cold water, warms; warm water cools," was Dr. Baruch's text. For years the medical profession, with the exception of Winternitz, Brand and a few others, believed the reverse and even today the average physician applies cold baths for reducing temperature, and when it fails, if he has the courage of his convictions, he makes the bath colder. To this error may be attributed all the failures in the hydrotherapy of fevers. Hydrotherapy in fevers gradually spread throughout Germany into a systematic method, the clinical results of which far excelled the expectant plan previously in vogue. The dominating idea was that the chief merit of cold baths lay in their power to reduce temperature. At that date hyperpyrexia was regarded as the chief lethal agent in fevers and it was the logical deduction that the cold bath, which was at that time regarded as

the only real antipyretic in existence, diminished the fatality of fevers by the reduction of excessive temperature. Brand labored earnestly to prove that antipyresis was not the chief aim of the cold bath. Not until the true antithermics were discovered in the coal tar preparations did it dawn upon the medical mind that high temperature was not the chief lethal factor in fevers.

The true function of the cold bath in fevers was not understood until Winternitz and Brand had insisted upon it again and again and brought down upon themselves criticism and contumely. In England, where the most influential works on the subject were written, this treatment has not become popularized, and the Brand bath has never been adopted by English physicians. In this country the bath was almost unknown until Dr. Baruch made a plea for its application in typhoid fever, before the New York State Medical Society, in February, 1888. The *Medical Record*, February 16th of that year, stated editorially that "it would be difficult to persuade the profession to adopt the heroic method of cold bathing." The same journal, May 7, 1898, stated: "It is generally conceded that excellent results are obtained by judicious cold water treatments, and the closer the Brand method has been followed the better the reports seem to be."

In the hospitals of Berlin, Dresden, Halle, Jena and Leipzig, the Brand method has gone out of vogue. The essential principle of the Brand bath, which is not at all temperature reduction, has been misunderstood. Brand's whole propaganda was in opposition to the antithermic idea of the cold bath. Sir Lauder Brunton says, in "Action of Medicines:" "Another way of applying cold is to put the patient into a cold bath and leave him there for a certain time. In St. Bartholomew's Hospital the cold bath is stated to be water at 65°F. or reduced by the gradual addition of ice water to 40°F. or below," a temperature from which the most enthusiastic hydrotherapist would shrink with horror. Perhaps the chief reason why hydrotherapy has not become more general in practice lies in the absence of correct teaching of the subject in our schools. Little progress can be made until such terms as cold water, warm water, hot water, are abolished, and *exact temperatures stated in their stead*. It were better to designate water as cold or warm when its temperature is below or above that of the skin, which in a normal subject is about 98°F., and in



fever subjects higher. The reason for adopting this rule lies in the hydrotherapeutic law that the so-called shock from cold water and the reaction, which is its object, are in proportion to the difference between the temperature of the skin and that of the water used. When water is applied having a temperature of the skin the effect is neutral because the thermic irritation is absent. A lower temperature produces the irritation of the sensory nerve terminals and contraction of the cutaneous arterioles; the lower the temperature, the greater the sensory excitation.

Another mode of dosage of water applied externally is by changing the duration of the treatment. If water  $10^{\circ}$  or more below the temperature of the skin is applied briefly, reaction follows quickly—as noted in sprinkling the face of a fainting person. If the same temperature of water is applied to the same person for a longer duration and upon a larger surface, as in a bath tub, reaction is slower and depression may ensue if continued too long. It is a well-known fact that cold is a thermic irritant and, like all irritants, it stimulates when mild, depresses when severe and destroys vitality when very intense.

What, then, is the aim of applying water below the temperature of the skin in fevers. The chief aim is to produce a reaction which may lead to the invigorating and refreshing of the organs and thus enhance its capacity to resist the lethal toxins circulating in the blood. The intensity, duration and efficacy of the reaction is in proportion to the so-called shock produced by the cold procedure. That all peripheral excitations are conveyed upon sensory tracts to the central nervous system and returned upon motor tracts to the various parts of the organism is a trite physiological fact, but that the effects of cold procedures are simply due to thermic excitations which are conveyed and reflected in a similar manner from the cutaneous to the various parts of the organism is, unhappily, not as familiar to the average physician as it should be. The contracting effect of cold upon the cutaneous arterioles is also a trite physiological fact, but the potent influence upon the entire circulation due to a sudden narrowing of this enormous vascular area and the subsequent tonic widening of the arterioles during reaction are not so familiarly known as they should be by him who would master the best method of hydrotherapy in fevers. Reaction after cold procedures is, therefore,

divided into two varieties, namely: The nerve or reflex reaction and the vascular or vasomotor reaction. The first is observed when a still-born infant is sprinkled with cold water. The local excitation of the sensory cutaneous terminals is conveyed to the central nervous system and through the vagus and other nerves to the inspiratory muscles, there is the familiar gasp, heaving of the chest, and breathing is established.

The second or vascular reaction is exemplified in its pure form in the application of cold water to a frost-bitten part. The congested and paretic vessels are contracted, followed a tonic dilatation, more vigorous circulation and a restoration of normal condition.

In the application of cold water in fevers a combination of the vascular and reflex reactions is obtained. This is most surely secured by the cold friction bath devised by Brand, which is administered as follows: A tub containing water at 70°F. is placed alongside the bed. The patient is given half an ounce of brandy or a small cup of black coffee. His face is bathed with ice water. He is placed upon a small hammock from which the sticks have been removed. He is then lifted easily by two persons, who twist the upper and lower ends of the hammock into a cord, and placed into the tub. The edges of the hammock are hung over the sides of the tub or dropped into it; two or more nurses practice constant friction over successive parts of the body, avoiding the right iliac region. Twice during the bath the patient is raised sufficiently to receive an affusion from a basin of water at 50°F. over the head and shoulders. During the bath the bed should be prepared for his return by placing upon the sheets a blanket covered by a linen sheet. Upon this he is lifted by means of the hammock from which the surplus water is allowed to drain while he is held a moment over the tub. Removing the hammock the patient is now quickly wrapped in the linen sheet and blanket. If shivering continues, he is dried at once and placed in bed, otherwise he is allowed to remain in the pack for half an hour or longer if he is asleep. After drying, the sheet and blanket which constituted the pack, are removed and he is placed between his own sheets, dressed in his gown. This technic, with the exception of the hammock, which Dr. Baruch added for convenience in lifting, was obtained directly from Dr. Ernst Brand 12 years ago. Any deviation from this

technic must not be termed a Brand bath. Friction is the most important element of the Brand bath, as it should be of every cold procedure. Friction enhances the thermic excitation, causing the arterioles contracted by the cold to dilate so that the skin of a patient issuing from a properly-administered bath is ruddy, though cold.

What is the object of the friction bath in infectious fevers? The chief lethal factor in infectious diseases is heart failure. Stimulating the vainly laboring heart is like spurring a jaded horse. How much more rational it would be to study the rationale of this so-called heart failure and avert it by measures based upon such a study. This has happily been done by Romberg and Paessler of the Leipzig Clinic, and by others who have found that heart failure is not due to a degeneration or failure of the heart muscle but *a failure of the peripheral circulation*. The toxins circulating in the blood induce a parietic condition of the peripheral arterioles. Their normal function of resistance for the maintenance of tone of the vasomotor system is impaired. Their tone is lost and as a result the heart is forced to exhaust itself by redoubling its efforts to compensate for the sluggish flow at the periphery. Plying stimulants to the heart under such conditions is like shoveling coal into the boiler of a locomotive which is vainly revolving its wheels over a slippery track. The engineer does not attempt to increase the power, he sands the track. Here a similar result is obtained from a properly-administered cold bath, or milder procedures, ablutions, affusions, etc. The stimulation of these arterioles by friction restores the lost vasomotor tone at the periphery, the heart feels the tonic resistance and, reinforced by impulses sent from the refreshed central nervous system, it sends the blood in joyous currents to the outlying area in the glandular vessels, enhancing the patient's resistance to the toxemia which menaces him with sure and resistless force until the life period of the Eberth bacillus is terminated. This is the rationale of the cold friction bath; the whole machinery of the organism receives a refreshing impetus every three or four hours.

Based upon these principles Dr. Baruch has adopted the following method of managing typhoid fever. When a patient manifests a temperature of  $101^{\circ}$  or over, rapid ablutions with gauze or linen cloths, dipped in water at  $85^{\circ}$ , are given every two hours with gentle friction over the trunk only. The



temperature of each ablution is reduced two degrees until  $60^{\circ}$  are reached. After the patient is dried by patting, *not* rubbing, with a thin linen towel, a wet compress is placed over the entire abdomen. This compress is prepared by wringing three folds of linen out of water at  $60^{\circ}$ . This is snugly held by a flannel bandage an inch wider than the compress around the entire body secured by safety pins. If there be a persistent temperature of  $103^{\circ}$  or over, without local manifestations, the friction bath of  $90^{\circ}$  for twelve minutes may be administered in the bath room. If the temperature rises to  $103^{\circ}$  again within four hours, the bath is repeated at  $85^{\circ}$ , four hours later at  $80^{\circ}$ , again at  $75^{\circ}$ , *always insisting upon active friction*. If one of these baths reduces the rectal temperature more than  $2^{\circ}$ , the case is pronounced not one of typhoid. Based upon the fact that baths are not an efficient antithermic agent in infectious fevers, this diagnostic bath has been evolved. It is as reliable in the first week of the fever as are the lenticular spots in the second week. The smaller the reduction of rectal temperature from one of these baths the more positive is the diagnosis of typhoid fever, and, *pari passu*, the larger the reduction, the less positive is it. As soon as a diagnosis of typhoid is made the friction bath is no longer administered in the bath room because the latter is inconvenient and does not permit of nurses standing on both sides of the tub. A tin tub, six feet in length, is placed on the stools alongside the bed. The patient having been inured to cold water by previous ablutions and cold compresses, and the friends having observed their refreshing effect, objection is rarely made to a bath of  $75^{\circ}$ , which may be reduced one degree at each subsequent four-hourly bath until a temperature of  $70^{\circ}$  is reached. Chilling must be prevented by continuous friction; the patient should not be removed even if he entreats for escape, unless the teeth chatter and the lips are cyanosed. A thready pulse often frightens the inexperienced into abandoning the friction bath. Careful examination of the pulse will reveal that it is slower and less compressible; smallness being due to contraction of its muscular walls by the cold water. Patients usually dislike the Brand bath and it requires all the persuasive power of the nurse, doctor and friends to retain them, but reliable statistics have demonstrated the value of the Brand bath.

Summing up his observations of the past ten years, however, Dr. Baruch is disposed to modify the strict Brand bath



in all cases seen after the first week of typhoid, but to approximate it as nearly as the reactive capacity displayed by the patient warrants. In American hospitals cases are rarely seen before the first week expires. He had never seen a case result fatally if the treatment was begun before the seventh day. A good substitute for the Brand bath is the sheet bath, the patient being rubbed vigorously while wrapped in a wet sheet. This repeated every three or four hours when the rectal temperature rises to  $102.5^{\circ}$ . Reaction must always be insured else the sustaining value of the bath is lost. In cases of feeble reaction, with compressible pulse and other signs of adynamia, affusion of one or more basins of water at  $60$  to  $50^{\circ}$  over the head and shoulders of the patient held in a tub containing six inches water at  $95$  to  $100^{\circ}$  is of advantage. These may be applied every two or three hours until reaction is established when resort can again be had to a plunge bath at  $70$  to  $80^{\circ}$ , applied either as a dip repeated two or more times successively or as a full bath with friction for five or more minutes. No remedial agent is so flexible in dosage as water. Regard must be had to the fact that that brief applications stimulate and are applicable in most desperate conditions as a measure to tide over emergencies, just as alcoholic stimulants are applied. The Brand bath illustrates what the maximum dose is capable of accomplishing in infectious fevers. The treatment is begun with milder procedures, as ablutions, compresses, short tubbings, affusions, towel and sheet baths, the physician always bearing in mind that *the longer the bath and colder the water within the limits indicated by the Brand bath, to which the patient has the capacity to respond, the more efficient and enduring will be the effect.* It is faulty practice to increase the temperature of a bath or other cold procedure when the patient feels uncomfortable or reaction is imperfect. Instead of increasing the water temperature, the duration of the procedure should be diminished, and more friction applied. Friction *during* a cold bath prevents the demand for friction, hot water bags and stimulants *after* the bath.

During the past few years Dr. Baruch has, in advanced cases, adopted a method which has enabled him to apply hydrotherapy in conditions that would otherwise forbid it. To illustrate the method he reported the following case:

Mrs. R., to whom I was called by Dr. Fraenkel, of New York, on the tenth day of a severe case of typhoid, had been

seen on the third day by Dr. Abraham Jacobi, on the sixth day by Dr. Francis Delafield and, her condition growing worse, on the ninth day by Dr. E. G. Janeway. Dr. Fraenkel was anxious to apply cold tubbing and had procured a portable tub. But Dr. Delafield, an earnest teacher and advocate of the Brand, counselled against any cold procedure in this desperate case, because the temperature was only  $102^{\circ}$ , the heart was feeble, the pulse 160, there was coma vigil and delirium and involuntary movements had existed for several days. I did not favor a cold water procedure until the reactive capacity had been tested without harming the patient. The central nervous system was so overwhelmed that it could not respond to thermic stimuli, as was proved by the absence of the inspiratory gasp when a basin of water at  $50^{\circ}$  was dashed over her head and shoulders. How was this cerebral obtuseness to be removed? I suggested the addition of a chemical irritant, harmless and transitory in its effect, for the purpose of arousing the feeble cutaneous arterioles to do their work. By adding the Nauheim salts to a tub bath of  $80^{\circ}$  and placing the patient into this latter while the carbonic acid gas was bubbling, the cutaneous arterioles were aroused from their lethargy. After five minutes bath the pulse was 150 and five minutes later, friction being constantly applied by three persons, it registered 140 and had become more resilient. The bath was prolonged to fifteen minutes. She was then lifted up and two basins of water at  $50^{\circ}$  poured over her, despite which she continued her stolid gaze as if nothing had been done. She was wrapped in a previously prepared sheet and blanket, dried and fell asleep, and continued for four hours in a calm slumber. When she awoke the bath was repeated, with the result of again improving the pulse, inducing sleep and diminishing delirium. Not until a fourth bath had been administered did the patient's brain feel the stimulus of an improved blood supply, consciousness return and delirium ceased. A slight intestinal hemorrhage precluded bathing for thirty-six hours. An abdominal compress at  $60^{\circ}$  was applied every hour to maintain the thermic excitation without disturbing the patient. When washing the rectum brought no traces of blood the bath was resumed with the result of complete recovery.

In conclusion Dr. Baruch said that this interesting case illustrated the flexibility of hydriatic methods and their favorable application in most desperate conditions. He hoped that

as a result of his remarks this remedial agent would be more frequently employed in the daily combat with disease and death.

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## Case of Chronic Seminal Vesiculitis; Removal of the Vesicles; Recovery.

### Presentation of Patient.

By BRANSFORD LEWIS, M.D.,

ST. LOUIS.

PATIENT, N. H., aged 38 years, was referred to me by my friend, Dr. William Winter, November 3, 1902. He was of German extraction; occupation, street car conductor in St. Louis. He had been the subject of one gonorrheal attack, in 1896, lasting about two or three weeks; after which he had felt nothing wrong until the beginning of the present trouble, which began March, 1902. Without any apparent cause, he noted increased frequency of urination, together with some pain in the left groin and testicle; and there was increase in a painful feeling that had been with him occasionally since his gonorrhea of 1896, in the sacral region. This pain had always been increased by cold weather but was better when it was warm, but he had never been really free from it for five years.

Following the onset of the acute attack above mentioned, the patient kept his bed for about five weeks, and was under the care of an able physician of the city. There was subsidence of the acute inflammatory stage and he went to work again; but he was unable to attend to his duties with any degree of satisfaction because of two reasons—the frequent necessity for urinating, and the severe pain in the lower part of his spinal column.

On consulting me he presented a robust appearance, in both weight and complexion. There was no discharge from the urethra, and the urine was perfectly clear in both portions. No stricture was present, though the meatus was smaller than desirable—a limiting No. 20 bulb sound. No



tangible evidence of urinary trouble was found until rectal palpation was made, when marked inflammation of both vesicles was disclosed by the acute tenderness when they were pressed on, and the fact that several drops of muco-pus were milked from them. This pus did not contain gonococci nor tubercle bacilli, but there were cocci and bacteria in moderate number. After opening the meatus sufficiently, the patient was placed on the methods of treatment usually adopted by us for nontubercular vesiculitis. He was given periodical massages and posturethral irrigations; abdominorectal faradism and, later, galvanism; the regular use at his home of my rectal siphon for hot water, and internal tonics.

While the frequency of urination improved considerably under these measures, the spinal pain did not, and I began to suspect that the patient was somewhat of a neurasthenic; in fact, would have believed him such had it not been for the direct evidence of continued inflammation obtained by the vesical milkings. The pus was persistent.

After ringing in the various changes of treatment usually efficacious, I acknowledged defeat in that respect and suggested extirpation of the vesicles. This was accepted by the patient, who said that anything would be preferable to the continuation of his suffering.

On January 20, 1903, through an inverted L-shaped incision, across the perineum and down to the left of the anus, I removed the greater part of both vesicles, scraping out the residue by means of the blunt curette; sewing up most of the incision afterward with buried catgut sutures and superficial silkworm sutures—with the exception of a small drain space at the lower end, in which I left a small rubber tube.

Union was prompt enough throughout excepting at this point, where there was some delay, but no effort at persistent fistula. The patient was sitting up within two weeks after the operation, and the wound was practically healed in three weeks.

Since the day of the operation the patient has had no return of the pain that had persisted for six years previous to that time. He has again taken up his occupation of street-car conductor, which necessitates his standing a number of hours at a time, and, under the stress of World's Fair visitors, has been quite arduous. He asserts that he is now as well as he has ever been.



## The Baby Incubators on the "Pike."

### A Study of the Care of Premature Infants in Incubator Hospitals Erected for Show Purposes.

By JOHN ZAHORSKY, M.D.,

ST. LOUIS, MO.

*(Continued from page 166, March Number).*

#### ADDITIONAL FEEDING.

For the infants taken out of the incubators additional feeding was necessary; since our supply of wet nurses was limited these babies had to thrive on mixed feeding. During the service of my predecessor certain proprietary foods had been given, for which he had been criticised, probably unjustly so, since the basis of his feeding was cows' milk. I determined at once to discontinue the use of the proprietary foods for reasons well known to pediatricists. Only cows' milk, properly modified, was used. Walker-Gordon modifications were rejected for the simple reason that these mixtures are twenty-four hours old before delivery. Old milk can hardly be found satisfactory with these feeble infants. Hence, I decided on a home modification of the cleanest, freshest milk that could be obtained. Milk was finally obtained from the Walker-Gordon Laboratory. The unchanged milk was sent out to the Incubators by a special messenger. Milk that was drawn the night before reached us about noon; it was, of course, kept cold until delivered. It was allowed to stand on ice for three hours and the lower half removed in the usual way. The top milk was used diluted with whey made from the lower half. In other words, the babies were fed on a whey and milk mixture, as has been advocated by Rotch and Morse in this country, and Monti and others in Europe. The mixtures were usually Pasteurized. Several times we had vomiting and occasionally diarrhea from these mixtures, but in all cases it could be referred to a high bacterial contamination of the milk. During the hot months, especially in times of hot weather and low barometer, the rapid change of milk is too well known to need especial study here.

The following formulæ give the directions for mixing and

the approximate composition of some of these mixtures. Subjoined is also found the approximate calculated caloric value of the food, on which the quantity of feeding was based.

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FORMULA I.

DIRECTIONS:				COMPOSITION:				
Whey,	-	-	fl. 3	8	Proteids,	-	-	0.95
Top milk,	-	-	"	2	Lactalbumin,	-	-	0.60
Limewater,	-	-	"	1	Caseinogen,	-	-	0.35
Water,	-	-	"	5	Fat,	-	-	0.87
Lactose,	-	-	-	3	Sugar,	-	-	6.
Caloric value, 11 to each fluidounce.								

FORMULA III.

DIRECTIONS:				COMPOSITION:				
Whey,	-	-	fl. 3	8	Proteids,	-	-	1.40
Top milk,	-	-	"	4	Lactalbumin,	-	-	.70
Limewater,	-	-	"	1	Caseinogen,	-	-	.70
Water,	-	-	"	3	Fat,	-	-	1.75
Lactose,	-	-	-	3	Sugar,	-	-	6.50
Caloric value, 15 to each fluidounce.								

FORMULA V.

DIRECTIONS:				COMPOSITION:				
Whey,	-	-	fl. 3	4	Proteids,	-	-	1.60
Top milk,	-	-	"	6	Lactalbumin,	-	-	.55
Limewater.	-	-	"	1	Caseinogen,	-	-	1.05
Water,	-	-	"	5	Fat,	-	-	2.60
Lactose,	-	-	-	3	Sugar,	-	-	6.50
Caloric value, 17.70 to each fluidounce.								

It would be superfluous to give additional formulæ. Altogether we had nine such mixtures, but those given were used mostly. In calculating the composition, the proteids are regarded in the strength of 3.6 per cent, while the fat (one half of all the milk) was computed as 7 per cent. In two mixtures (7 and 8) we employed top milk containing one-third of the whole and which we calculated the fat as 10 per cent in the mixture. The caloric value was calculated from the ordinary rule that each gram of proteid or sugar yields 4.1 large calories, and that each gram of fat gives 9.3 calories.

In feeding these older babies we were again guided by the energy quotient, which, of course, had to be controlled by the digestive power of the infant. It is very difficult to maintain a constant energy quotient when the change is made from human milk (calories, 21 to each ounce) to a milk mixture

with only about one-half its caloric strength. It was no wonder, therefore, that most infants lost in weight when this change was made, even though the food was digested perfectly.

While the whey and milk modifications were satisfactory as a food for the older infants, especially when supplemented by one or two breast feedings, it is difficult to understand how such a mixture could be preferred to human milk. To give the infant a proper caloric strength in such dilute foods necessitates the administration of large quantities. I imagine it would be very hard to give a ten-days old baby an energy quotient of 100 in a formula like No. I.

## V.

### THE CALORIC NEEDS OF THE PREMATURE INFANT.

Heubner has laid down the rule that the food of the infant should have a energy quotient of 100 calories. A quotient of energy which is less than 70 calories is insufficient to sustain the needs of the normal infant. Artificially-fed babies require an alimentation whose energy quotient is 120 calories. Schlossmann believes that a higher energy quotient (110 calories) is necessary.<sup>1</sup>

The subject is comprehensively discussed in an article by J. L. Morse (*American Journal Medical Sciences*, March, 1904), to which I must refer for more extended reference to the literature.

While it may be admitted that the figures of Heubner are rather too high for large infants, for premature infants their value must stand, since it is a well-known law that the small bodies lose proportionately more heat than large ones. It has, therefore, been assumed that premature infants require more calories per kilo than those born at term. The cases of Beuthner and Schlossman leave the matter still in doubt, although they found a higher energy quotient necessary (113, 119). Morse from his interesting study also reaches the conclusion that the caloric need of premature infants is relatively greater than that of full term infants.

A further corroboration of this need is found in the very successful method of feeding adopted by Budin, who, calcu-

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<sup>1</sup>The energy quotient signifies the number of calories in the food given to each kilogram of the infant's weight.

lating on even a low basis of calories in human milk, uses an energy quotient of 120 to 130 calories in alimentation.

John Henry.							
Age, days	W'ght	Loss or Gain	E.Q.	Age, days	W'ght	Loss or Gain	E.Q.
2	1615		25	32	1590	+ 7	80
3	1548	-67	35	33	1610	+20	82
4	1550	00	60	34	1633	+23	85
5	1548	00	86	35	1625	- 8	95
6	1520	-28	97	36	1653	+28	95
7	1512	- 8	100	37	1682	+29	95
8	1498	-14	98	38	1690	+ 8	100
9	1490	- 8	98	39	1704	+14	110
10	1490	0	102	40	1718	+14	105
11	1476	-14	100	41	1732	+14	100
12	1483	+ 7	110	42	1740	+ 8	100
13	1476	- 7	110	43	1760	+20	97
14	1483	+ 7	120	44	1790	+30	100
15	1470	-13	106	45	1804	+14	114
16	1477	+ 8	105	46	1812	+ 8	120
17	1484	+ 7	60	47	1825	+13	135
18	1470	-14	60	48	1867	+42	134
19	1476	+ 6	60	49	1867	00	134
20	1512	+36	70	50	1860	- 7	135
21	1520	+ 8	60	51	1867	+ 7	135
22	1505	-15	60	52	1896	+29	135
23	1526	+21	75	53	1910	+14	132
24	1526	00	75	54	1910	00	132
25	1526	00	75	55	1931	+21	135
26	1526	00	75	56	1924	- 7	131
27	1520	- 6	75	57	1924	00	131
28	1526	+ 6	75	58	1924	00	131
29	1543	+16	75	59	1938	+14	130
30	1583	+40	75	60	1931	- 7	120
31	1583	00	78	61	1952	+19	125

TABLE 16.



I offer this additional evidence of the caloric needs of the premature infant. While I recognize that, as the milk of the wet nurses was not analyzed quantitatively, and an average composition was assumed, these figures are by no means absolutely correct. Yet, it is the method usually adopted to calculate the caloric needs. Morse is certainly rather severe in criticising results based on this estimate, when he states that figures based on such an average caloric value per liter of milk can not be of great value. It would be an almost impossible task to analyze each separate food supply of the infant, since it is known that the milk varies in composition on different days and even on different periods of the day. Then it would make a marked difference whether the infant obtained its milk when the breast was overfilled or nearly empty. It will be seen, therefore, that nearly all calculations in regard to the need of the energy quotient when human milk is used must be based on an average caloric value.

We had five wet nurses who furnished the milk, and their milk was emptied into a bottle whence it was fed to the babies. It was often mixed, that is to say, one baby would receive milk from more than one wet nurse on the same day. I feel, therefore, that we are perfectly justified in using an average composition in making calculations.

Then, again, the present purpose is not so much to establish a maximum or minimum line, but to find a practical average which can be used by physicians in the feeding of premature infants. The rule has already been given in the previous section, it remains now to study the individual cases and see if the proper needs have been formulated in the rules for feeding.

It took some little time after I took charge to get the daily weights and quantities sufficiently exact, so that the figures given are the results after September 18th.

In analyzing the record of the food and weight of John Henry (Table 16) several interesting facts may be noticed. In the first place, in trying to increase the milk in the first two weeks as rapidly as Budin directs, a severe attack of indigestion was induced. On the fourteenth day with the alimentation having a quotient energy of 120 calories, about what his rule of feeding would give, our patient had frequent green stools showing undigested food. Moreover, he had several attacks of cyanosis and subnormal temperature. On the sev-

enteenth day the food had to be decreased and an additional supply of water given. The dyspeptic symptoms disappeared in about ten days, and he began to have a good daily gain on a quotient energy of about 75 calories. It will be observed that during the ten days (27th to 37th day of life) he gained 162 grams, or an average of 16 grams a day. This record rather supports the assertion of Czerny and Keller (*Des Kinder Ernährung*, page 385) that some infants gain 15 grams daily on an energy quotient of 70 calories. During another period (46th to 56th day of life), with an energy quotient of 130 calories, he gained only 112 grams, or an average of 11 grams daily. Of course, the first period was immediately after a period of indigestion and loss in weight; the gain may be probably accounted for by a storing of water. Another period when the quotient energy was near 100 calories (35th to 45th day) gave a daily gain of 18 grams. A much higher quotient energy gave no higher gain. Even later, when on account of supplying his hunger, or putting him to the breast he took a still larger quantity of milk his gain was no greater. Table 17 gives a brief résumé of his subsequent history.

Day of life	W'ght	Gain or Loss	E.Q.
70	2144	+192	145
80	2279	+135	160
86	2293	+114	130

TABLE 17.

In the case of Bernice (Table 18—Chart 8) I feel sure that our method of feeding was rather too cautious at the beginning. In her case the method of feeding based on the energy quotient had not as yet been adopted. Notice the sharp rise in weight on September 22d, when the energy quotient on the previous day was near 100 calories. She certainly corroborated the view of Heubner that an infant can not gain on an energy quotient of 70 calories or less. The first good gains are reached when the energy quotient is over 80 calories. During the period of October 11th to 21st (energy quotient near 90 calories) she gained on an average of 6 grams daily. During the period of October 22d to November 1st, with an

energy quotient of about 110 calories, she gained 8 grams daily. On the following period of ten days the average gain was 29 grams daily, with an energy quotient of nearly 115 calories.

## BERNICE.

Date	W'ght	Calories	E.Q.	Date	W'ght	Calories	E. Q.
9/14	1995	Entered		10/24	2066	252	121
15				25	2101	252	119
16				26	2130	252	113
17				27	2137	252	113
18	1966	84	42	28	2186	232	106
19	1952	126	64	29	2186	212	96
20	1938	147	75	30	2222	212	95
21	1938	189	97	31	2222	227	102
22	1974	157.5	79	11/1	2229	281	126
23	1974	168	85	2	2293	277	120
24	1974	120.75	61	3	2307	304	131
25	1966	100	50	4	2314	303	131
26	1966	126	64	5	2392	277	115
27	1966	126	64	6	2435	277	113
28	1952	110	56	7	2413	277	115
29	1966	105	53	8	2413	315	130
30	1966	120.75	61	9	2463	265	107
10/1	1959	120.75		10	2498	288	115
2	1952	126	64	11	2527	253	100
3	1952	115.5	59	12	2548	285	111
4	1938	126	65	13	2598	251	96
5	1945	126	64	14	2598	285	109
6	1952	136.5	69	15	2634	298	113
7	1966	147	74	16	2627	342	130
8	1966	147	74	17	2655	351	132
9	1966	147	74	18	2683	342	127
10	1966	147	74	19	2662	331	124
11	1981	168	84	20	2676	332	139
12	2002	252	125	21	2691	342	127
13	2009	252	125	22	2698	294	108
14	2030	189	93	23	2719	313	115
15	2023	189	93	24	2691	267	99
16	2023	189	93	25	2655	315	118
17	2038	189	92	26	2733	360	131
18	2059	168	81	27	2740	198	72
19	2073	194	93	28	2726	269	98
20	2038	225	110	29	2719	219	80
21	2052	190	92	30	2676	210	78.67
22	2045	252	123	12/1	2740		
23	2059	252	122				

TABLE 18.



In the case of Pearl (Table 19) the alimentation had to be reduced on the fifteenth day as dyspeptic symptoms appeared. From the fifteenth to the twenty-fifth day with an energy quotient near 100 calories the average daily gain was about 15 grams. Following this period the food quantity was relatively less and the gain in weight was correspondingly less.

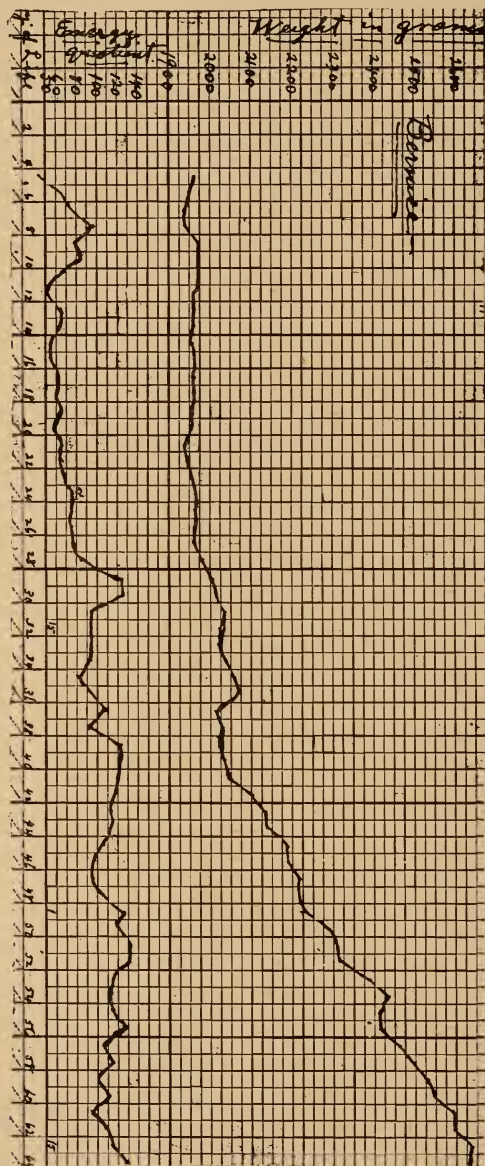


CHART 8.



Omega (Table 20—Chart 9) was a large baby and we should expect a larger gain on the same energy quotient, but as a matter of fact we find no great difference. The first period of ten days (15th to 25th day) with an energy quotient of 100 to 130 calories the average daily gain was only about 15 grams. On the following ten days, with a lessened food supply, the gain was about 4 grams daily. This was caused also by slight indigestion superinduced by excessive feeding (17th to 24th day). It only emphasizes the fact that it is dangerous to give an alimentation that exceeds an energy quotient of 120 calories during the first few weeks.

Pearl.							
Age, days	W'ght	Loss or Gain	E.Q.	Age, days	W'ght	Loss or Gain	E.Q.
2	1705		37	16	1591	+ 8	105
3	1626	— 79	38	17	1598	+ 7	105
4	1598	— 28	39	18	1633	+ 35	103
5	1576	— 22	67	19	1640	+ 7	102
6	1583	+ 7	66	20	1654	+ 14	101
7	1561	— 22	61	21	1676	+ 12	100
8	1561	00	64	22	1697	+ 21	100
9	1561	00	64	23	1697	00	100
10	1568	+ 7	64	24	1705	+ 8	99
11	1568	00	110	25	1733	+ 27	97
12	1568	00	120	26	1726	— 7	97
13	1583	+ 15	140	27	1726	00	97
14	1605	+ 22	140	28	1755	+ 29	96
15	1583	— 22	140	29	1755	00	96
				30	1783	+ 28	95

TABLE 19.

The rapid increase in the food in the case of Margaret (Table 21) did not succeed in producing a rapid gain. Time must always be allowed for the weak digestive apparatus to adapt itself even to mother's milk. She did not stay with us long enough to determine her digestive power any further as the Institute closed and she was sent home in good condition.

The history of St. Louis (Table 22) is exceedingly in-

Omega.							
Age, days	W'ght	Loss or Gain	E.Q.	Age, days	W'ght	Loss or Gain	E.Q.
				18	2137	00	135
2	2133		29	19	2151	+14	135
3	2123	00	39	20	2157	+28	135
4	2094	-29	50	21	2165	-14	135
5	2087	-7	85	22	2194	+29	134
6	2094	+7	95	23	2215	+21	132
7	2080	-14	110	24	2186	-29	134
8	2108	+28	109	25	2222	+36	132
9	2107	00	82	26	2208	-14	118
10	2080	-28	80	27	2222	+14	118
11	2108	+28	108	28	2250	+28	112
12	2094	-14	109	29	2236	-14	112
13	2094	00	109	30	2208	-28	116
14	2066	-28	87	31	2272	+64	120
15	2101	+35	109	32	2257	-15	111
16	2137	+36	108	33	2222	-35	127
17	2137	00	135	34	2257	+35	95

TABLE 20.

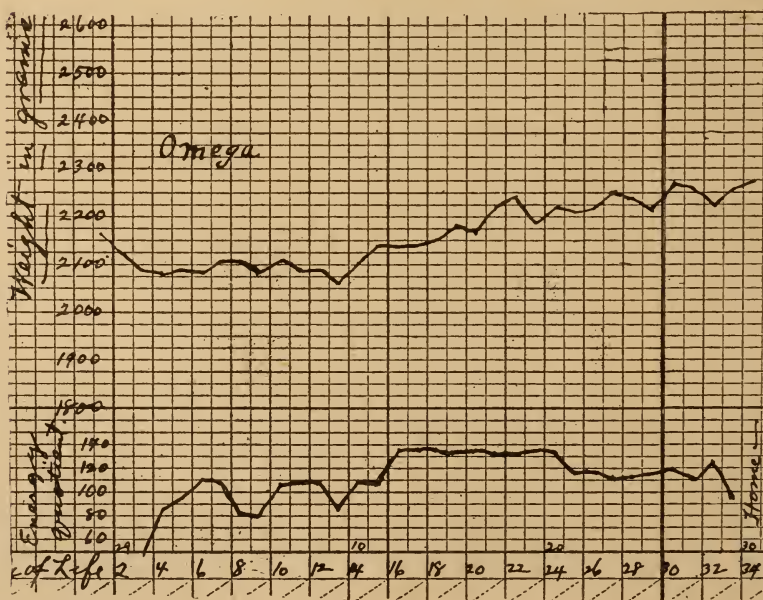


CHART 9.

structive. By the rapid increase of the food to an energy quotient of 100 calories on the sixth day the initial loss in weight was checked, but an indigestion followed which was treated by a reduction in food, and for twenty days there was

## Margaret.

Age, days	W'ght	Gain or Loss	E.Q.	Age, days	W'ght	Gain or Loss	E.Q.
				9	1540	— 14	102
2	1726		22	10	1533	— 7	95
3	1640	— 86	41	11	1533	0	95
4	1561	— 79	67	12	1533	0	95
5	1533	— 27	68	13	1547	+ 14	108
6	1547	+ 12	81	14	1561	+ 14	107
7	1540	— 7	95	15	1547	— 14	108
8	1554	+ 14	114	16	1547	0	108

TABLE 21.

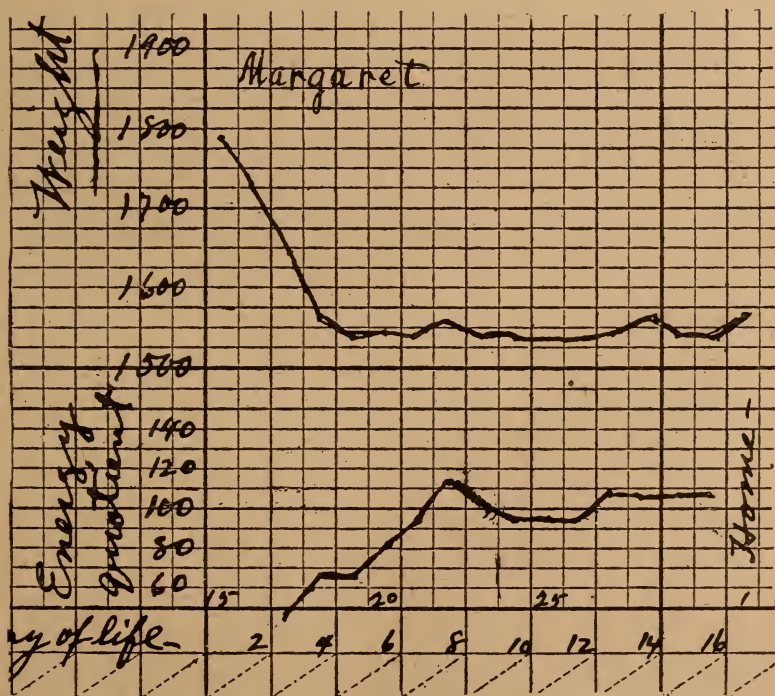


CHART 10.

no gain in weight. On the twenty-seventh day there was a great improvement in stools and the food was increased to an energy quotient of 100 calories. But pushing the food beyond

St. Louis.							
Age, days	W'ght	Gain or Loss	E.Q.	Age, days	W'ght	Gain or Loss	E.Q.
	1385			31	1300	00	85
2	1356	- 29	20	32	1272	- 28	98
3	1264	- 92	27	33	1286	+ 14	98
4	1228	- 36	48	34	1293	+ 7	113
5	1235	+ 7	64	35	1280	- 13	115
6	1250	+ 15	100	36	1266	- 14	71
7	1257	+ 7	100	37	1285	+ 21	86
8	1279	+ 22	88	38	1278	- 7	68
9	1272	- 7	80	39	1285	+ 7	81
10	1250	- 22	72	40	1300	+ 15	82
11	1243	- 7	73	41	1300	00	112
12	1230	- 13	90	42	1342	+ 42	125
13	1237	+ 7	73	43	1413	+ 71	126
14	1250	+ 13	80	44	1413	00	148
15	1250	00	86	45	1385	- 28	150
16	1236	- 14	82	46	1349	- 36	155
17	1230	- 6	90	47	1385	+ 36	153
18	1228	- 2	88	48	1378	- 7	180
19	1250	+ 22	90	49	1413	+ 35	178
20	1243	- 7	80	50	1427	+ 14	147
21	1243	00	67	51	1434	+ 7	145
22	1250	+ 7	58	52	1448	+ 14	159
23	1257	+ 7	68	53	1476	+ 28	190
24	1221	- 36	74	54	1490	+ 14	195
25	1228	+ 7	74	55	1519	+ 29	193
26	1243	+ 15	75	56	1512	- 7	194
27	1280	+ 37	100	57	1533	+ 21	191
28	1293	+ 13	100	58	1540	+ 7	190
29	1300	+ 7	100	59	1568	+ 28	160
30	1300	00	100	60	1605	+ 37	130

TABLE 22.



that again brought on greenish stools. On the forty-first day the infant had not yet regained its original weight, and the stools having improved a forced alimentation was tried, gavage being used at times. Mother's milk was given in increasing quantities so that its energy quotient on the fifty fourth day reached 195 calories. Probably this was overfeeding—yet the infant gradually became accustomed to this food and on the following twelve days (48th to 60th day) gained on an average of 19 grams daily. On the following ten days (not shown in the table) he gained 10 grams daily on an energy quotient of 130 calories. His history will be more specifically discussed under "Indigestion."



CHART II.

Annie (Chart II) illustrates the gradual increase of food, and how the loss in weight is checked when an energy quo-

tient of 70 calories is reached. She gained nicely on an alimentation having an energy quotient of 95 to 100 calories. Chart 12 shows how a larger increase of food does not in-

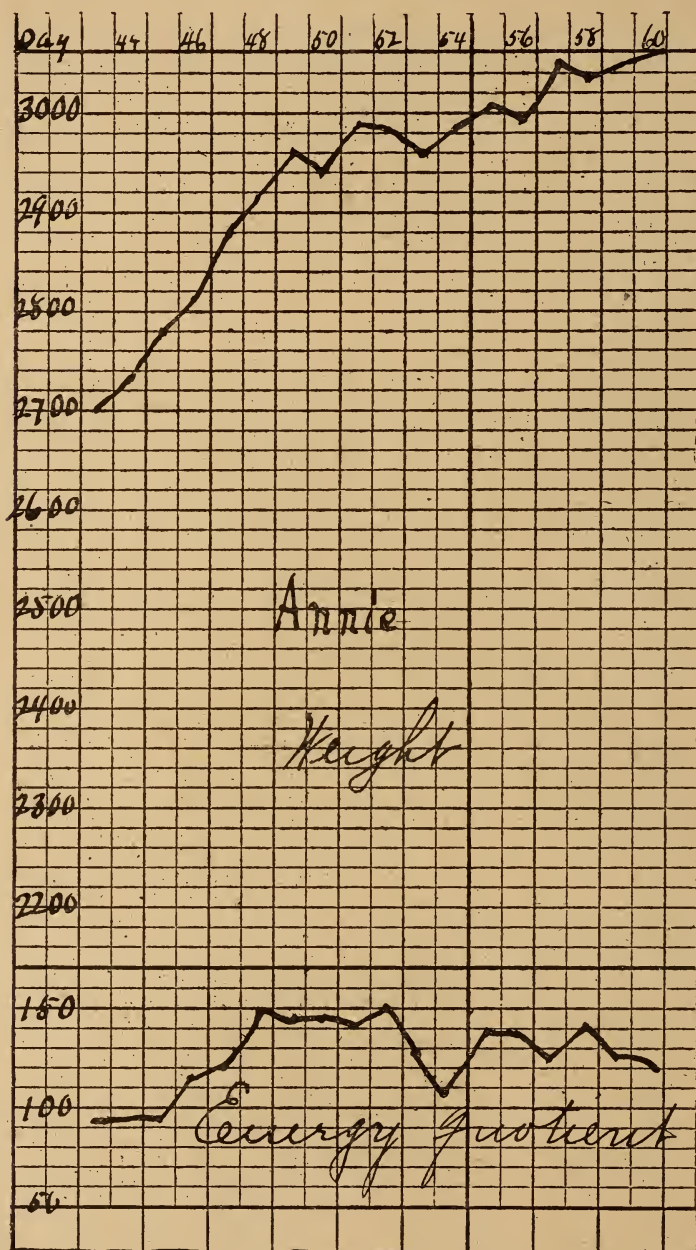


CHART 12.

crease the gain in weight but slightly. An energy quotient of 150 calories was too large. She gained very rapidly (30 grams daily) on a food having an energy quotient of 120 to 130 calories (58th to 64th day). She was a large baby to begin with and her growth was uninterrupted.

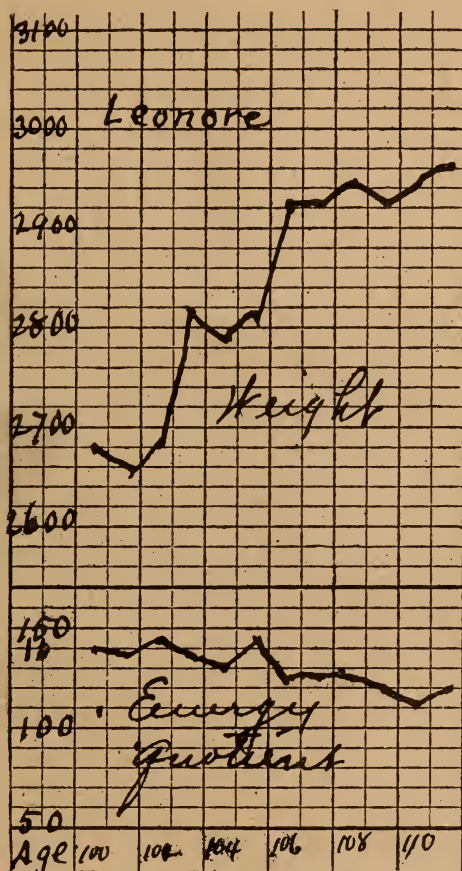


CHART 13.

Charts 13, 14 and 15 (Leonore, Mag. and Donald) illustrate the growth on mixed feeding. These were graduates, and the curves show their food and weight during certain periods of their life. Again, we notice that an energy quotient of about 120 to 130 calories is most satisfactory. Higher quantities give rise to indigestion. When the energy quotient is the same, and digestion is perfect it is impossible to draw any distinction between modified cows' milk and human milk in these older babies.

## DEDUCTIONS.

1. The use of the energy quotient as a basis of infant feeding is entirely practicable.

2. An energy quotient of 70 calories should be considered the minimum for maintaining the metabolic equilibrium. In many cases a steady growth may be obtained on this alimen-tation.

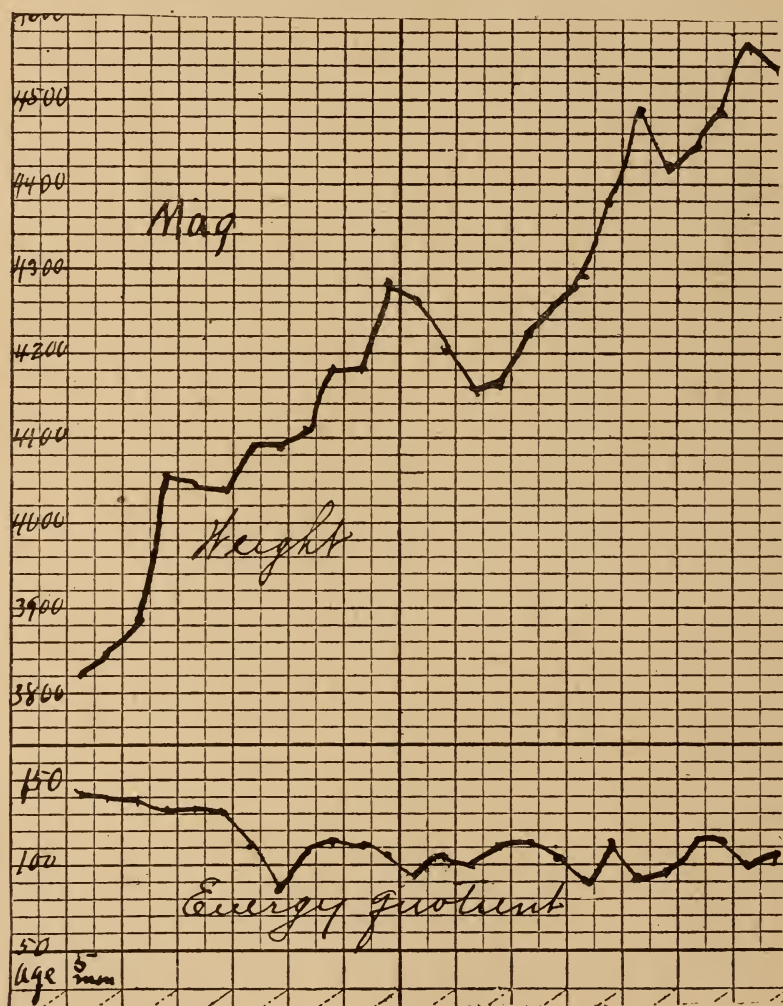


CHART 14.



3. Most premature infants require human milk having an energy quotient of 100 to 120 calories in order to insure a steady gain in weight.

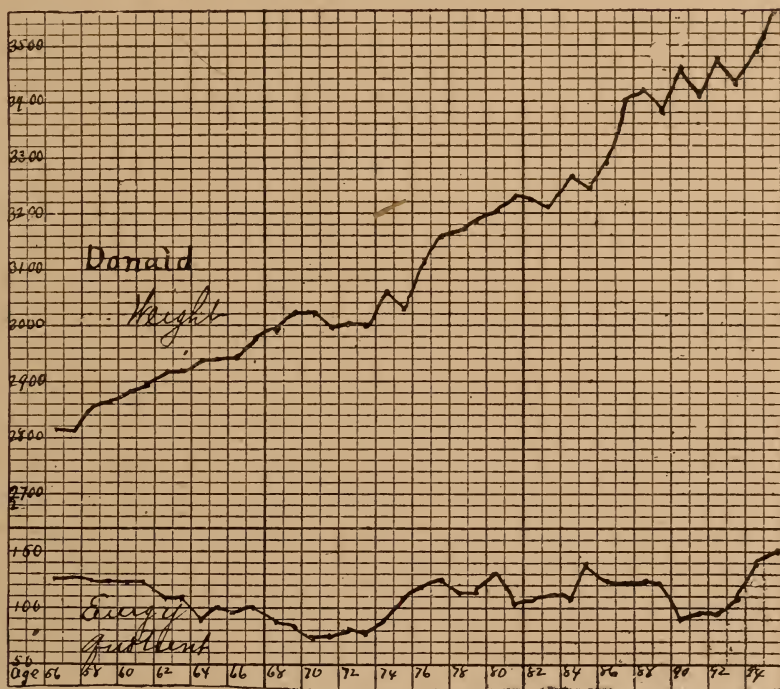


CHART 15.

4. Quantities of human milk having an energy quotient of more than 135 calories should only exceptionally be given, as this favors indigestion and subsequent loss in weight.

5. In older infants there is little difference in growth when human or bovine milk is used, provided the digestion is perfect and the energy quotient the same.

(To be Continued.)

## LEADING ARTICLES.

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### ACUTE TUBERCULAR PNEUMONIA.

It seems more than probable that many of us have diagnosed these cases as those of pneumonia without fully appreciating the true condition. Very recently Dr. Osler has called attention to acute tubercular pneumonia. Fifteen cases have been seen by him. It is a rare form of tuberculosis—perhaps, because we do not appreciate its manifestations. Four of Dr. Osler's (*Brooklyn Med. Jour.*, February 1904) cases occurred in the female and eleven in the male. In a great many cases there is a history of dissipation, not generally of any debility. As a rule the disease attacks persons in good health, not known to have tuberculosis—individuals going about their work without any suspicion of latent disease. The clinical features are remarkable. There are two special types. In the one, the disease resembles in every respect ordinary lobar pneumonia; in the other, typhoid fever. As a rule the disease sets in abruptly. In 9 of the 15 cases seen by Dr. Osler the onset was with a chill, and the patient could fix definitely the date. In three of the balance there was acute onset, while in two the onset was insidious. Usually the disease begins like lobar pneumonia, acutely and with chill followed by fever, cough, pain in the side and rusty sputum. The apex may show consolidation on percussion; extends day by day with tubular breathing. Remarkable changes may be noted on the third day. The sputum often becomes green as grass, not very frequently, however. On the eighth or ninth day the crisis does not occur but the patient becomes worse; may be a toxemia out of all proportions to the area involved; the sputum which previously contained blood, leukocytes, and pus cells, now contains abundant tubercle bacilli. Microscopical examination is the only way of avoiding a clinical error. The mistake is usually made at the onset. In 12 of Dr. Osler's 15 cases tubercle bacilli were demonstrated; in one case on the fourth day; one on the eighth; one on the fourteenth; one on the fifteenth, and one on the sixteenth. Elastic tissue is fre-

quently found but rarely before the fourteenth day. In a great majority of cases there is a leukocytosis; in one of Dr. Osler's cases there were 74,000 leukocytes per cubic mm. Cyanosis is not as constant a sign as in acute miliary tuberculosis. The toxemic feature may lead to a diagnosis of typhoid fever. The diazo reaction is usually present but Widal's is negative; there are no typhoid bacilli in the blood. The physical signs at the onset are definite and distinctive. There is a distinct friction sound corresponding to the pain in the side; marked and intense in the majority of cases. Early consolidation is the rule. May be complete consolidation of entire lobe in forty-eight hours; may be Skodaic resonance in thirty-six hours, and flatness in forty-eight hours. French writers (quoted by Dr. Osler) lay great stress on the suppression of breathing over the consolidated area but in a few of Dr. Osler's cases there was tubular breathing. There may be fine crepitant r  le; later bubbling r  les; and as the lung begins to break you may have signs of cavity at the apex. In fact the remarkable change at the apex from ordinary tubular breathing to definite cavernous breathing or the loud resounding character of the r  les may be the first thing that causes the practitioner to suspect tuberculosis. In all of Dr. Osler's cases the physical signs suggested pneumonia. The diagnosis of pleurisy with effusion may be made. In most of the cases the course of the disease is downward. The type may be

1. Fulminant or very acute—the patient dies within two weeks.
2. The group of cases in which death occurs within ten to twelve weeks—the galloping consumption.
3. The patient may improve and get well enough to leave the hospital.

The only safeguard is a careful, systematic and routine examination of the sputum—daily examination. It is not possible for the general practitioner to have the sputum of every case of pneumonia examined, but just as soon as the disease deviates from the usual course of pneumonia then the sputum should be examined daily. One of the greatest difficulties is in the differentiation between a unresolved pneumonia and this type of tuberculosis. Dr. Osler has seen cases of pneumonia that did not resolve for thirteen weeks. The diagnosis from typhoid fever is often very difficult, quite as much so as is miliary tuberculosis. As a rule, however, typhoid fever even with a bronchitis or slight pneumonia does not cause a leukocytosis to any

very great extent   Widal's reaction is very important. The majority of cases of acute tubercular pneumonia are hopeless. The treatment is the same as that of pulmonary tuberculosis. We feel that Dr. Osler has called attention to a most important condition—one that has not been fully appreciated and duly recognized. The literature—that is the American medical literature, shows very few cases.

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### IODOFORM BONE PLUGGING.

Surgeons have long recognized the pressing need of an aseptic, absorbable, non-toxic substance that could be introduced into the cavity of bones after the removal of sequestra and diseased tissues, in order that the period of recovery could be shortened and the general character of the resulting wound improved. In cases of chronic osteomyelitis for instance, it is frequently necessary to remove quite extensive areas of bony tissue and the resulting gutter offers an excellent site for the implantation of bacteria. It is just as essential, however, to protect the granulation tissue that will be formed since the latter is often quite fragile.

Dr. Senn ("American Text-book of Surgery," page 1134) has advised the employment of decalcified bone which latter is prepared as follows: Select the compact layer of the fresh tibia or femur of an ox, remove all periosteum and medullary tissue, divide into longitudinal strips about one-eighth of an inch wide, and immerse in a relatively large quantity of 10 to 15 per cent watery solution of hydrochloric acid, which must be renewed daily for from one to two weeks; then wash thoroughly in water or weak solution of caustic potash, cut into small strips, soak for forty-eight hours in 1/1000 mercuric bichlorid solution, remove and store in a saturated solution of iodoform in ether. When about to be used, wrap in iodoform gauze, dissolve out the excess of ether and iodoform with alcohol, and put in 1/2000 mercuric bichlorid solution until required, when careful drying with iodoform gauze should precede their implantation. Dr. Senn's method has not given universal satisfaction.

Some years ago Silbermark (*Muench. Med. Woch.*, 1903, No. 20) reported the findings of von Mosetig (*Ibid.*, No. 2), who had employed an iodoform filling consisting of iodoform, 60.0; spermaceti and oleum sesami aa 40.0; heated slowly to 100°C. in a flask on a water



bath; kept at this temperature for fifteen minutes; then removed and allowed to cool and solidify, while shaking constantly. Before using, it is melted and heated to  $50^{\circ}\text{C}$ . in a thermostat. von Mosetig has employed this substance in 100 cases with most excellent results. Very recently Moorhof and Jones (*Lancet*, January 21, 1905) have recorded their results with the same preparation. Professor Moorhof began his studies some five years ago. He formerly employed a paste but soon found it of no value. He calls attention to the fact that the every particle of diseased tissue must be removed and that the cavity must be perfectly dry and sterile. Cold air has been found quite as efficient as hot air to dry the cavity. A double rubber bag or bellows forces the air through formalin solution and then through calcium chlorid. After syringing out the cavity with 1 per cent formalin solution the drying should be continued until the wet, glistening walls appear dull, a proof of their freedom from moisture. The cavity should be freshly evacuated immediately before the plugging. The material should be poured in slowly. If the tibia be the bone affected then let the leg hang down and fill the lower part of the cavity; after it has cooled then elevate the limb and fill the other end of the cavity; after the latter, place the limb in horizontal position and fill the remaining area. The sinuses in the soft parts furnish ample drainage. If no sinuses exist then don't tie the sutures tightly.

The iodoform bone plugging substance has only a provisional sojourn in the wound cavity; it may be either pressed up and expelled by the new connective tissue formation which brings about the obliteration of the cavity as the latter grows into the mass; or it may be absorbed and consumed. It follows that the absorption of the filling substance by the granulation naturally takes place extremely slowly and constitutes the reason why there is no danger of intoxication. The plug protects the granulations from sepsis and disintegration. Organic restoration is accomplished more speedily and completely. Professor Moorhof has employed the substance in 220 cases and has never been compelled to remove the plugging, and has never observed symptoms of iodism or the so-called "cures with sinus formation," which are in reality no cures at all. Increased pulse rate and temperature may follow for a few days after operation. Acute osteomyelitic cases are not suitable for the operation since asepsis is unattainable.

Professor Moorhof has extended the method to the treatment of

joints after excision and he tabulates the exact details of the mode in which it is carried out. It is quite necessary that more extensive experiments be made before the technic will be universally adopted. It seems quite probable, however, that the method will receive a cordial welcome by American surgeons

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### PRIMARY ABDOMINAL PREGNANCY.

Very recently Sir Bland-Sutton<sup>1</sup> has reiterated the assertion that primary abdominal pregnancy remains an unverified speculation. By the term, primary abdominal pregnancy is meant the escape of an oöspERM (fertilized ovum) from the Fallopian tube and its becoming engrafted on the omentum, intestines, liver or other abdominal organ, and developing into a fetus. Perhaps no true case has as yet been recorded. A mine of knowledge was thrown upon the subject by Leopold<sup>2</sup> in 1896 when he reported a very rare and a very important case. The patient, while in the fourth month of pregnancy fell down a flight of stairs and sustained a severe injury of the abdomen; at the expiration of a few days she appeared in good condition; when the usual term of pregnancy had expired she consulted the physician who diagnosed extrauterine pregnancy and a few days later celiotomy was performed; a four-month fetus was found enveloped in a thin (amniotic) sac, and the umbilical cord was found to pass through an opening in the posterior wall of the uterus; the latter containing the placenta; at a subsequent operation the placenta was removed and the patient recovered. Here, then, we have absolute proof that the fall caused a laceration or rupture of the uterus through which the fetus escaped.

Bland-Sutton has carefully investigated the subject of pregnancy in the lower animals and has found that tubal pregnancy is very rare; indeed, he failed to find a single convincing record or specimen, but found numerous cases recorded in which puppies and kittens inclosed in tightly fitting sacs have been adherent to the omentum and intestines. Some investigators have regarded these as examples of primary abdominal pregnancy.

In 1891, Bland-Sutton explained these cases as follows: In mammals and two-horned uteri the horns are of some length and often contain several fetuses. When the fetuses are too large to traverse

the maternal passages the uterus as a consequence of its violent efforts to expel its contents ruptures and the fetus or fetuses are extruded into the abdomen. Death of the mother usually results, but in some cases the uterus contracts and the surfaces of the rent cicatrizes. The imprisoned fetus adheres to the omentum, the amniotic fluid is absorbed, the placenta disappears and the amnion shrinks and compresses the fetus as tightly as if it had been swathed in mummy cloth. In some instances the fetal sacs do not adhere to any viscus but remain free in the abdomen.

Pembry has made extensive researches and concurs with Bland Sutton. In Kamann's<sup>3</sup> case the uterus ruptured and the discharged embryos became adherent to the omentum. A very interesting case has been reported by Cullingworth in which the celiotomy revealed the fetus escaping from the unclosed ostium. In Mendes de Leon's case it escaped into the cavity and caused a great deal of investigation before its true source was found. Bland-Sutton thinks that now we have to realize the probability that a fetus advanced to the twelfth week of pregnancy may be slowly extruded through an unclosed ostium, an event that is as remarkable as it is unexpected.

The American literature contains five cases of so-called primary abdominal pregnancy. Center's<sup>4</sup> case does not in any way prove the occurrence of abdominal pregnancy. The fetus was macerated and the tubes and broad ligaments were not carefully examined. Behle's<sup>5</sup> complained of sudden severe abdominal pain about the second or third month, it causing her to faint. At the celiotomy the left tube could not be found. Probably a case of tubal pregnancy. Meeks'<sup>6</sup> case was quite similar to the latter. Symptoms and findings at operation pointed to tubal rupture. Smith's,<sup>7</sup> and also Noble's case, were undoubtedly tubal pregnancies. The subject is a very interesting and important one, and it would seem as though the assertions of Bland-Sutton are well-grounded.

## BIBLIOGRAPHY.

<sup>1</sup>Lancet, December 10, 1904.

<sup>2</sup>Archiv f. Geb. und Gynak., Band 52, Seite 376, 1896.

<sup>3</sup>Monat. f. Geb. und Gynak., Band 17, Seite 588, 1903.

<sup>4</sup>Phil. Med. Jour. Vol. 5, page 871, 1900.

<sup>5</sup>Ibid., Vol. 7, page 1173, 1901.

<sup>6</sup>Am. Jour. Obstet., 1900.

<sup>7</sup>Brit. Med. Jour., Oct. 5, 1901.

## EDITORIAL COMMENT.

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### Dr. Osler and Young Men.

In his farewell address to the Johns Hopkins University, Prof. Osler made the assertion that the principal human achievements have been done by young men between the ages of 25 and 40 years. No doubt, this is an induction based on his own observation. The men who have worked with him have exhibited a constructive force during this period, after that their energy declined, especially if their earlier efforts have been only partially successful. Many physicians who in their younger years have shown a strong aptitude for original research, become so overburdened with practice that their endeavor is lost to the scientific world. They are forced to be superficial by the ringing of the door and telephone bells.

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### Dr. Reed and the Panama Canal Commission.

A very strong document is a fitting appellation for the report of Dr. Charles A. L. Reed on the Panama Canal mismanagement. The medical department has done good work under enormous difficulties with few facilities and little assistance by the Commission. The Sanitation staff is under extraordinary subordination and hindered in every step by persons having no knowledge and little appreciation of sanitation. It does one good to read in what vigorous terms Dr. Reed denounces the mismanagement and recommends that the President ask for the resignation of the Commission. (See *J.A.M.A.*, March 11, 1905).

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### The Estimation of Total Solids in Urine.

To those busy practitioners who have neglected the quantitative determination of urea and other solids in the urine the recent study of Cabot (*Ibid.*, March 18-25, 1905) will be rather gratifying. He finds that among other conditions mistaken for nephritis, by too much reliance on the urinary findings, are senile conditions. He describes it as an error to attempt to estimate the urea without an accurate knowledge of the patient's metabolism, or to state that renal cells are present when a few mononuclear cells are found. He holds that the vast



majority of estimations of urinary solids, including urea, are a waste of time, and the attempt to estimate the anatomic condition of the kidney by measuring albumin and by searching for casts is fallacious.

These are astonishing generalizations to those who love to work with the test tube and burette. The clinician, however, will recognize that these assertions are probably true. Cabot states that the most reliable data are the 24-hour quantity, the specific gravity and the color.

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### **Electricity and Movements of the Stomach.**

It has not been long since Pawlow experimentally demonstrated positively that the old idea of gastric juice being excited by mechanical stimuli is entirely erroneous. Now comes Marshall (*Med. Record*, January 7, 1905) and declares after an experimental study that neither the faradic nor galvanic current applied percutaneously or directly, ever causes an increase in the peristalsis of the stomach nor intestine. Yet, electricity is recommended in various atonic conditions of the alimentary canal; gastric dilatation, motor insufficiency of the stomach, constipation, etc. If this should prove true, there will be a very limited field for electrotherapeutics in gastroenteric diseases.

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### **Lime as a Water Purifier.**

For several months St. Louis has had very clear pure water. The change has been brought about by the addition of sulphate of iron and calcium oxid, which forms a precipitate and as it falls removes all the mud including animal life. It was a great success until less sediment appeared, and not all the lime was precipitated. The resulting water was not so clear and occasionally gave a strong taste of lime. When all the small fish in St. Louis died suddenly it was first realized that harm may be done by an excess of lime. No doubt, the proper amount will gradually be learned, meantime some small animals may suffer.

It will be recalled that some months ago the Agricultural Department issued pamphlets recommending the use of minute quantities of copper sulphate as a means of destroying algae. Doty (*Med. Record*, January, 1905) found that copper sulphate and lime, by forming a precipitate, removes impurities and acts antiseptically. There does not seem any reason why copper sulphate is superior to iron sulphate, and

as the nontoxic properties of copper are by no means proven, the former chemical must be preferred.

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### So-Called Fragilitas Ossium.

Now comes Nathan (*Amer. Jour. Med. Scien.*, January, 1905) and reports a few cases of osteogenesis imperfecta, a disease occurring mostly in still born infants. He shows that many of these cases live and grow to maturity, but the new position assumed is nothing more nor less than this congenital disease—osteogenesis imperfecta is fragilitas ossium. His data are good and arguments stronger than is found at the basis of many medical theories. While this does not explain the pathogenesis of fragilitas ossium it throws additional light on its source and the solution of its problems may yet be reached. Nathan discards the name fragilitas ossium and suggests—osteogenesis imperfecta.

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### Erythema Infectiosum.

We have scarcely recovered from the labor of trying to differentiate the "fourth disease" or Duke's disease from measles and rotheln (we did not succeed), when suddenly another exanthema is brought out. This happens every few years until we are getting hardened to it. But this new disease seems to be really a definite entity.

The disease called erythema infectiosum by Stricker (1899) has been observed by Tschamer, Tripker, Plachte, Heimann, etc., and has received recognition by such an eminent authority as Escherich. Shaw (*Am. Jour. Med. Scien.*, January, 1905) describes it as an epidemic disease, with slight subjective symptoms and characterized by a maculopapular rose-red eruption, more pronounced on the cheeks, legs and arms. It occurs commonly during the ages of 4 and 12 years. The incubation is six to fourteen days. The eruption is usually the first symptom, although malaise, weakness and slight sore throat may precede. The rash appears first on the face, the cheeks present a symmetrical rose-red efflorescence. The appearance somewhat suggests erysipelas; the skin around the mouth is pale; discrete spots often appear on the forehead; on the extremities the rash is morbilliform and not so deeply rose-red as on the face.

We shall take pleasure now in assisting to find the disease in this country.

## SOCIETY PROCEEDINGS.

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### MEDICAL SOCIETY OF CITY HOSPITAL ALUMNI.

*Meeting of October 20, 1904; Dr. Charles Shattinger,  
President, in the Chair.*

Dr. BRANSFORD LEWIS, read a paper (see page 201, this issue) on a

#### **Case of Chronic Seminal Vesiculitis, Removal of the Vesicles, Recovery; Presentation of Patient.**

##### DISCUSSION.

Dr. R. E. KANE asked whether there had been any recurrence of the shreds in the urine, and whether Dr. Lewis had examined the scrapings or had the seminal vesicle examined after its removal.

Dr. LEWIS replied that the urine had been perfectly clear except during the one period he had mentioned when the patient had some trouble, probably due to his hard work. He had not made the examination referred to by Dr. Kane.

Dr. HENRY JACOBSON said that this condition was very obscure and only in recent years had been treated successfully. There are three forms of the forms of the disease—simple, gonorrheal and tubercular. The simple form is supposed to be caused by excesses in sexual congress, masturbation, and unnatural sexual relations, urethral applications and instrumentations are exciting factors. Gonorrhea is the most frequent cause of seminal vesiculitis. After the patient has had a gonorrheal inflammation the vesicles are in condition for other bacteria to invade the reservoir. It has been proven that this reservoir contains the colon bacilli, staphylococci and other bacteria, just as the gall-bladder contains all kinds of bacteria. Tubercular vesiculitis occurs frequently in conjunction with the involvement of the bladder and prostate. Those cases usually have to be operated upon. In reference to the reflex symptoms, he mentioned a case that had been

sent to him that had been treated for gall-stones, enteralgia, etc, the site of the patient's troubles being the vesicles. By massaging the vesicles he could elicit pain in the region of the gall-bladder and other parts of the abdomen. By gentle massage of the seminal vesicles the pains gradually disappeared showing them to have been reflex. As to diagnosis in cases of chronic prostatitis and seminal vesiculitis, it is sometimes difficult to demonstrate where the pus comes from. His method was to have the patient urinate in three glasses and then fill the bladder full of clear water. Then, after massaging, if the urine is cloudy, and the urine in the last of the three glasses was clear, the seminal vesicles are affected. Otherwise it is difficult to tell whether the cloudy urine in the last glass comes from the prostate or the seminal vesicles.

Even under the microscope one can not always tell, because the seminal vesicular sac may have been so inflamed that it does not contain the spermatozoa. He thought he would use the Kraske operation as for the rectum in removing both vesicles. In the operation mentioned by Dr. Lewis it would be very difficult to remove both vesicles, while by laying back the sacrum it would be easy to get at both of them.

Dr. JOHN MORFIT said that Dr. Lewis had followed the surgical rule. Where there is pus, get at it. His results showed the wisdom of his action in this case. The speaker could not indorse the radical operation advised by Dr. Jacobson. Though the normal vesicle sacs are hard to find, the diseased ones, enlarged and indurated from the inflammation, are more accessible.

Dr. O. L. SUGGETT laid stress on the difficulty of diagnosis; because, having a short finger, he had often doubted his ability to feel the seminal vesicles. He believed that there should be a difference in the treatment of the different varieties of seminal vesiculitis. Fuller called attention to the different varieties as early as 1893, referring to the atonic variety and the inflammatory variety. The atonic variety seemed to be adapted to the stripping of the seminal vesicles. As to the surgical method of treatment adopted by Dr. Lewis, he considered it a very courageous and heroic one to reach and remove the seminal vesicles, but it undoubtedly was the proper thing. He had always been at a loss to account for an epididymitis without a seminal vesiculitis, although there was no question but that in the majority of



cases there was a seminal vesiculitis. In conclusion Dr. Suggett most heartily recommended the siphon.

Dr. J. L. BOEHM thought that if the disease was sought for it would be found more common than is generally supposed, especially in clinic cases. Many laborers go to the clinic complaining of lumbar pain and in the seminal vesicles is found the cause. He had seen a case recently, a man who had been treated by a number of physicians for sciatica. On first examination there was found pure gonorrheal pus. He was treated, and after three weeks' treatment he said that he felt better than he had for three or four years. It might seem a rather unusual statement to say that locomotor ataxia could be diagnosed by a rectal examination, but it had been done in one instance. A gentleman of intelligence had been elsewhere. One physician had said that he had vesiculitis. Dr. Boehm examined the vesicles per rectum and could find no marked indication of vesiculitis. He found no obstruction and in his own mind he made a diagnosis of incipient tabes. This gentleman later had occasion to go to Chicago and there consulted a physician whom he had consulted two years previously. This doctor, in going over him the last time, told him he had a beginning locomotor ataxia. The patient remained in St. Louis about a year after that. He would start micturition with a few drops and then the urine would stop. He has since gone to California and is being treated there, and it is said, that he is now on the verge of complete paraplegia. When it started it evidently looked like a vesiculitis. In reference to Dr. Jacobson's remark relative to the diagnostic value of finding or not finding spermatozoa, the speaker called attention to the fact that in making a microscopic examination of the milkings in chronic vesiculitis where pus is found there will sometimes be found the heads of spermatozoa in the pus corpuscles and that pus is antagonistic to the vitality of spermatic fluid.

Dr. KANE said his experience in the surgical treatment of the affection was limited to the observation of one case and the result had been anything but satisfactory. The operation which the surgeon did was a modified Kraske and only one vesicle removed. The patient got absolutely no benefit from the operation. Another thing, when there is a mixed infection and not only the colon bacilli but the tubercle bacilli planted on a gonorrheal infection, absolutely no good can be done in many cases except by coming around to the surgical treatment.

Dr. HENRY JACOBSON said that in tubercular cases the seminal vesicles should not be stripped as it would aggravate the case. For Dr. Suggett's benefit he wished to call attention to the fact that there are instruments for prolonging the finger. Dr. Eastman's instrument he had used for a long time. He, also, had found the heads of a spermatozoa mingled with the pus in some cases, but in many other cases the inflammation of the vesicles had been so extensive there were no spermatozoa in the reservoir.

Dr. H. J. SCHERCK thought that any one who had had much experience in treating genitourinary diseases would admit that no one class of troubles puzzles one more and gives less satisfactory results than seminal vesiculitis; 50 per cent of the pains are psychical. The patient becomes a confirmed neurasthenic and it is one of the hardest things in the world to get the idea out of his head. Regarding the obscurity of seminal vesiculitis, the pains due to that condition are sometimes referred to the remotest part of the body. To be able to diagnose the condition from the subjective symptoms is impossible and, from the objective symptoms, very difficult. To milk the seminal vesicles is often impossible. Filling the bladder with sterile water and having the patient in a squatting position renders it an easier matter to reach the vesicles. What he had understood by the three glass test was that the patient was allowed to urinate in one glass, the canal then being washed, the vesicles milked and the urine then divided between two glasses, the first containing the washings of the prostatic urethra. One of the most common occurrence seen by the practitioner is in that class of patients who, after having been treated by the ordinary methods, leave the doctor's office and treatment with the belief that they are thoroughly cured and after the slightest excess return to the doctor with the unpleasant statement that they are not cured. Reinfection is one of the most common occurrences. The very nature of the condition precludes cure by any means short of operation. Even when one can milk the seminal vesicles there is still the thoroughly infected sac. He did not know of a single case of chronic gonorrheal vesiculitis that could be pronounced cured. Of course, the patient could be gotten into a comfortable condition in acute cases, but in chronic cases not much could be expected from treatment other than a cure effected by time and Nature.

Dr. R. E. KANE wished that Dr. Lewis would describe what he

meant by the three-glass test. The test mentioned by Dr. Jacobson was a modification of the one usually used. This was, after the first and second glasses had been used, to milk the seminal vesicles then have the remainder of the urine voided in the third glass, showing the relative cloudiness of each.

The PRESIDENT said that he had a keen personal interest in the patient and congratulated Dr. Lewis on his diagnosis. The patient was a walking humiliation to him as he had been to his office several times with the complaints that had been mentioned and he had been completely misled. He examined the urine and found it always clear, the reaction normal, and he was led off the track of suspecting urinary trouble. On one occasion he made a rectal examination and examined the prostate but did not reach up for the seminal vesicles. His diagnosis was one of purely functional disturbance, the treatment, therefore, was ineffectual. Sacral pain had been mentioned as the most prominent symptom, yet the speaker did not remember that the patient had complained of that. It was the stress of frequent urination that he complained of. He said he could not hold his water long and on attempting to hold it, it caused him some distress. He complained of some backache. The speaker asked if there were cases without pain, the condition merely manifesting itself by urethral discharge. Again, how would it be possible to differentiate a chronic vesiculitis from prostatic disease, when the diagnosis is made by virtue of an examination of the milkings, supposing that the prostate is not tender or swollen? How could one determine the presence of vesiculitis when the urine was all cloudy, supposing there was present an inflammation of the bladder and it was impossible to get any clear urine?

Dr. LEWIS, in closing, said that the thought had just occurred to him what a marked difference there was in methods by which the American medical fraternity arrives at a diagnosis and the French methods. He was a pronounced follower of the American method, which is analytical. Frenchmen will write six to ten pages on the reflex symptoms, while the American method is to go right to the spot, by physical examination. Of course, the patient will want to have a long heart-to-heart talk and tell all his symptoms for an hour or an hour and a half, but the physician can tell him more about his condition after a three-minutes' examination than by a week's talk. The speaker said that he had methods that he applies whether the patient



describes symptoms indicative of stone in the bladder, vesiculitis or inflammation of the urethra. The history is first gotten. The meatus is inspected; then the patient is directed to pass most of his water into two glasses. That tells, in a general way, whether there is any inflammation and whether it is in the anterior or posterior urethra; if anterior inflammation, only, the second urine being clear in the bladder, and passing over a clean urethra is clean when it gets into the glass. Before any instrument is put into the urethra massage of the prostate is done. If the patient is put into the correct posture, and he is not corpulent, the prostate and in most cases, the vesicles, can be reached. The physician thus learns whether there is hypertrophied prostate or whether it is acutely tender or not. The meatus is watched for oozing pus. If one or two drops come down it is evidently from the prostate and not from the seminal vesicles. Then the seminal vesicles are milked, the right one, usually, first. If one or two drops appear and there was no sign of pus while massaging the prostate, the indication is that it is from the right seminal vesicle. It is then stained for bacteria, or gonococci, or whatever the indication is. If the prostate has been massaged, and the right and left seminal vesicles, and no pus has come down, that does not prove that there is no inflammation there. The next step is for the patient to pass water in the third glass. In the third glass there is washed down the effect of the massage and if there is pus then it can be found and stained. If the pus is mixed with spermatozoa in the third glass of urine, it is positive evidence that the pus is from the seminal vesicles. Dr. Lewis remembered the point made by Dr. Bryson, very well, and it was a very nice one, but he had never been able to put it to much use, for a chronic vesiculitis does away with the presence of spermatozoa. So, while it was a nice point to remember, he did not believe one should wait for it or place much confidence in its importance. If, after such investigations, there is found no pus, that excludes pus from the diagnosis. As to the differential diagnosis—whether the pus comes from the bladder or from these parts—in inflammation of the bladder the urine is usually alkaline and cloudy, while if there is suppuration in the vesicles the urine may be perfectly clear. As to the possibility of seminal vesiculitis without pain, it is absolutely certain that there are cases where the patient has never heard of his vesicles. Dr. Lewis had seen several cases where there was no pain. The reflective pain comes from inflamed vesicles but it comes in a very odd manner sometimes. In



one case there was marked pain in the cardiac region. He had had descriptions of pain in the abdomen, on one side or the other, that was relieved by relief of the vesiculitis. He had not observed pain farther away than the cardiac region, although he believed some nasal specialists had observed pain in the nose. If there was one thing that he wished to impress upon his hearers it was that these things were subject to digging out definitely; not by obstruse analysis and long reasoning, should the physician make his diagnosis, but by a thorough physical search into the case. He ought not to decide before he has made the examination. It is for the examination to determine, not hair-splitting reasonings. Dr. Lewis said they had had two cases recently in which there were large stones in the bladder. In one case there were five, and in the other one, of considerable size. They were hugged down close under the prostate and could not be reached by the stone searcher. In the second case the stone was large as half an egg and the patient had been examined and told that he had only a hypertrophied prostate. Two weeks later he examined him and found that he had a hypertrophied prostate and the stone. He had failed to find the stone until the cystoscope showed it.

### Presentation of Specimens.

Dr. Lewis presented a specimen of prostate that he had removed subsequent to the removal of a number of stones. The patient was much run down had been treated for enlarged prostate. After several weeks he succeeded in seeing a number of stones, five or six—there was not room enough to count more. They made a perineal cystotomy and got out sixteen or seventeen at the first operation. In all there were twenty-eight stones in the bladder. The introduction of the sound in that case immediately met with the stone. It was a case of multiple calculus. The mass of stones was about the size of a fist doubled up. At the first operation there were removed all that could be felt, one or two or three at a time, but because the patient was in such bad general condition the operation was not prolonged by a further search. The patient was in a wretched condition and they got him off the table as soon as possible. He recuperated from the first operation very satisfactorily and after about ten days Dr. Lewis put in the retrograde cystoscope and then saw five stones hidden down under the prostate. As soon as he got into sufficiently good condition he

was put under chloroform and the posterior lobe of the prostate and the five stones were removed. He recuperated and for the last two or three weeks has been out on the road attending to his business affairs. The patient feels perfectly well and strong, better than he has felt for years. He visits the office every week or two when he gets in from his trips on the road. He had never met with a case in which there were as many large stones in the bladder as this one, nor had he ever read a report of such a case. He had read of cases of one hundred or more stones of the size of a shot, and he had had a case where something like fifty came down from the kidney.

The PRESIDENT asked: Supposing a cystitis to be present, how could one know whether there was or was not a simultaneous vesiculitis? If one massage the prostate and milk the vesicles and no drop of pus appear at the urethral orifice and if in the third portion of urine voided there appears a deposit, how can it be decided whether that be from the prostate or the vesicles?

Dr. LEWIS replied that the dense cloudiness of the urine would indicate an inflammation of the bladder but it could be known whether there was an inflammation of the vesicles by tactile investigation. Possibly the condition could not be demonstrated the first time but after one or two trials there should be no difficulty. Supposing the patient passed the two first glasses that were not cloudy or only partly so, then, after massaging the prostate the third glass would be distinctly cloudy, or it might be cloudy after massage of the vesicles. That would be the urine testimony. But in most cases there would be tenderness and enlargement and these allied points would aid in the diagnosis.

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*Meeting of November 17, 1904; Dr. Charles Shattinger,  
President, in the Chair.*

Dr. J. G. MOORE, of the Emergency Hospital, World's Fair, presented a specimen of a large

### **Salivary Calculus.**

There were absolutely no symptoms until a few days before he saw the patient. The gentleman had come from Alaska and when he reached Seattle his mouth was sore and by the time he reached St.

Louis he could not talk. Dr. Moore removed the calculus from the right sublingual gland.

Dr. SIMON BARUCH, of New York City, read a paper (see page 193, this issue) on the

### **Fallacies, Aims and Methods of Hydrotherapy in Fevers.**

#### DISCUSSION.

Dr. BARKER said that shortly after leaving the hospital service it had fallen to his lot to treat quite a number of typhoid cases, more, perhaps, than usually comes in one's first year of general practice and, interested at that time in some articles by Dr. Baruch and others on hydrotherapy he had attempted to follow out the plan of bathing known as the Brand method. During the first twelve or eighteen months he had had ten or a dozen cases of typical typhoid fever. In the hospital it had been the custom for the internes to do the thing thought best for the patient whether the patient thought so or not, and that custom was of service to him when he began the use of the Brand bath. To put it very mildly, the results from the start were quite satisfactory. A great deal of his work had been among people of limited means. Some were not even able to buy the necessary tub. He surmounted that difficulty by having a set of tubs at his office, and many a night the large tin tub might have been seen moving down the street, his office man under it. The restored tonicity was something which had particularly struck him in the Brand treatment. The vasomotor paralysis was counteracted. The benefits derived from the bath were certainly manifold. The reduction of temperature by bathing as a criterion in the recognition of typhoid fever seemed unreliable to him and he would like to hear more about it before regarding it as of much value.

Dr. E. S. SMITH understood that the greatest disturbance came through the disturbance in the peripheral circulation due to the vasomotor paresis, and all the nerve symptoms in such cases were due to that sluggish circulation. Physicians generally believed that the disturbance in the nerve centers in typhoid was due directly to the effect of the toxin on the nerve tissue and, therefore, they felt that those cases in which the nerve symptoms predominated were the ugliest. It was a comfort to feel that those disturbances in the nerve centers were due to a temporary nerve disturbance. The tonic effect upon the

heart was certainly interesting and it was a point that had not been appreciated in the treatment of the disease. It was a comfort to know that the cardiac failure was in a large proportion of cases consequent upon peripheral disturbance in the circulation. This is contrary to the common belief that cardiac failure was due partly or largely to the effect of the toxins on the heart-muscle. If he had understood correctly it would make him all the more enthusiastic in his advocacy of the Brand bath.

Dr. H. W. SOPER said that one method of treatment of typhoid in vogue here might come under the head of hydrotherapy. A normal salt solution enema was given daily as a routine method. He knew of several physicians who gave it regardless of hemorrhage or diarrhea, and he wished that Dr. Baruch would give his opinion of that method. He also desired his opinion of proper bathing in true heat stroke.

Dr. A. E. MEISENBACH used antipyretic drugs, occasionally with happy results in the early part of the fever. He was glad Dr. Baruch did not wholly disapprove of them. A point in regard to temperature reduction had been brought to his mind forcibly when the doctor had referred to the case in which the temperature was comparatively low. Now, the question was, did the patient need a stimulation or elimination? He wished the doctor would say more regard to that point, and in closing his paper express himself in regard to the necessity and indication for the reduction of temperature.

Dr. W. S. DEUTSCH wished to know what could be expected from that treatment in typhoid fever where there was hemorrhage, not only slight but profuse. It was always a question how far one could go with the Brand method. The essayist claimed that the results were due to the tonic effect; if that was so it would open a new field in the treatment of diseases other than typhoid fever; if they could get the same tonic effect, thereby helping the enfeebled circulatory system to throw off those septic matters, they would have a potent remedy at their command. He did not believe this bath method had been used very much in cases of sepsis, where it might have a similar salutary effect.

Dr. J. L. BOEHM said that a good illustration of the statement that hot water cools and cold water warms was brought about in a case of inflammation of the prostate where the patient had violent at-



tacks of priapism. He at first advised a cold water siphon ; after the use of the cold rectal siphon he was a great deal worse. On the contrary heat, at  $110^{\circ}$  (the patient having begun with a temperature of  $100^{\circ}$ ) gave relief. He finally used it at a temperature of  $115^{\circ}$  with perfect ease and was now using it at  $116^{\circ}$ . When an attack came on he got more relief from it than from large doses of bromides, chloral, etc. Another illustration of the good effects of cold applied externally was in three cases of adrenalin poisoning. It seemed it had a peculiar effect upon the peripheral circulation, though his experience with the drug was confined to urethral work. The three patients became intensely cyanotic, the temporal blood vessels became engorged and looked like lead pencils thrust under the skin. All that he had done in these three cases was to apply towels wet in cold water to the head and when they became warm other cold wet towels were wrapped about the head ; the effect was a very pleasant one.

Dr. V. P. BLAIR called attention to a contrivance that had been used for baths ; it was a frame six feet long and six feet wide, set on legs eight inches long, and covered with a white rubber sheet ; it had the advantage that a pillow could be placed under the patient's head. Finally it was used under a very heavy person and a piece of carpet was placed under the back ; with this contrivance friction could be applied to the back.

Dr. HENRY JACOBSON mentioned the beneficial results from the use of a curved rectal tube (prostatic pschycophore) he had obtained in a case of pelvic inflammation between the cul-de sac of Douglas and the rectum ; he had used hot water at  $102^{\circ}$  and inside of a week there was a marked decrease in size of the inflammatory mass. He wanted to hear from the President on the use of water in typhoid fever as he had devoted a great deal of attention to the use of bathing in typhoid fever.

Dr. GEORGE HOMAN wished the doctor would state, in closing, whether he considered the Nauheim salts a valuable addition in routine practice.

Dr. M. J. LIPPE said that the amount of ignorance in the use of water was simply astonishing. He had had a patient with typhoid in one of our largest hospitals and they had no tub ; he then tried to instruct the nurse how to give a bath with friction and she had told him that she was quite proficient in the method. The next day the patient

was no better and when he had inquired about the method of giving the bath the nurse had said she had wrapped the patient in cloths dipped in ice water. Of course, that had not helped the temperature very much nor was the peripheral circulation much improved. The value of the bath as a diagnostic measure in fevers had been taken up by one of the ablest diagnosticians, Dr. Musser. In hydrotherapy in the diseases of children he had often noticed that a cold bath would send the temperature up while a warm bath would bring it down, explainable by the effect of cold or warm water on the peripheral circulation.

Dr. HUDSON TALBOTT had used the Brand bath but he had not carried it out as the doctor advised; the results might have been better. He was surprised to hear the doctor say the temperature was not reduced at all. His experience had been that the temperature was reduced to a certain extent, in most cases, yet, he often found no reduction, and, while the bath had been used to reduce the temperature it was with the idea also of producing a general tonic effect, and aside from other considerations, the knowledge that his patient would go off into a sweet sleep even after a short bath was enough reason for his use of the bath.

Dr. GEORGE GELLHORN said that he was sorry that he could not take part in discussion of typhoid fever, but since hydrotherapy had a wide field in gynecology he wanted to ask Dr. Baruch whether the tonic effect of the friction bath would not be intensified by the addition of sea salt. He had been using cool sea salt bath with friction for several years past in the treatment of neurasthenic patients in whom he wished to stimulate the vitality. There was another point which he wished information: Ten or twelve years ago Krueche, of Germany, had said that cold compresses tightly wound around the forehead would relieve ovarian pain and explained the phenomenon by saying that anemia of the ovarian region was produced, which did not seem a very satisfactory explanation. He would be very glad to learn from an authority on this subject how such a result could have been obtained.

Dr. J. C. FALK said that he, like all those present, was a thorough believer in the value of hydrotherapy in typhoid fever. He had received his training at a time when the work of Dr. Baruch was beginning to take effect in this country; had followed it up in the hospital,

and tried to carry it out in private practice afterward. He has adopted the routine practice of treating typhoid fever with water spongings and had found them quite satisfactory. The average family was not supplied with the necessary conveniences or with competent nurses, but if they were given instructions to sponge the patient at a certain temperature they would follow those directions and the patient would thus get the necessary amount of friction. He instructed the nurse to sponge the patient when he was restless and nervous, and when his general condition seemed to demand it, even though the temperature might not be very high. After sponging the anterior surface from head to foot the patient was turned over and the back sponged and this procedure continued until the patient was cooled down, the sponging to be repeated as often as necessary. This method had given very satisfactory results. Hydrotherapy was valuable in many other diseases; he used it in all acute febrile conditions, as for instance, in pneumonia, diphtheria, scarlet fever and other acute diseases when complicated by high temperature; he added that he had seen less typhoid fever during the summer than in any summer in recent years and suggested that possibly the improved water supply of St. Louis had something to do with lessening the disease.

The PRESIDENT said that the cordial welcome given the doctor was in marked contrast to the reception accorded the speaker when, enthused by Dr. Baruch's teaching, he had presented the subject before the St. Louis Medical Society. He had suffered considerable ridicule on that evening but had been able to silence criticisms, however, for he had had statistical charts made, and among them was one with a line indicating the death rate as shown by the statistics in the local health office, and above that the results obtained by the true Brand treatment. Every doctor in St. Louis who had a pet treatment had to acknowledge that the results of his pet treatment were included in the statistics from the health office, and the contrast was clear and striking. In one or two points a little additional experience from another worker might be of interest. Someone had asked about hemorrhages; as he understood it, the treatment was to be discontinued or modified when there are hemorrhages, but he had become so confident in its application that he had departed from that rule. In one case of severe hemorrhages, a more rigorous application of the treatment seemed to subdue the hemorrhages after a lapse of forty-eight hours. The extremely interesting remark of the doctor as to the diagnostic value of

the bath could receive substantiation from him. Having used the bath in other fevers, he had been struck with the rapidity with which those fevers were overcome, although it had never occurred to him to utilize the bath as a diagnostic measure. In true malarial fever, where large doses of quinin failed to speedily arrest the disease, the addition of cold baths succeed; he could not explain this unless it was that the resistance of the organism was increased so as to enable it to better cope with disease. It seemed to him that this treatment utilized the natural curative powers of the organism itself, and in so doing was in line with modern methods; it was just as modern as antitoxin or the serum therapy; those did not act by the introduction of any foreign substance, but were means of whipping up the natural curative forces, causing the cells to produce antibodies, etc. Hydrotherapy, unquestionably, acted in a similar way. Speaking of his enthusiasm in the use of hydrotherapy in fevers, he said that if he, himself, were sick with typhoid fever, and could get a tub and begin early enough, he felt that he might get along without a doctor. Patients treated early enough were able to step in and out of the water. If patients could be seen early enough and the Brand method applied, there would not be over 2 per cent mortality. The speaker said that he hoped that Dr. Baruch would understand that what he had said was only to show that the seed he had sown had fallen upon fertile ground, and that there were some in St. Louis who had taken up his work and were carrying it on. There was only one trouble in carrying out the treatment of typhoid by cold baths, and that was the opposition encountered. It was not difficult to get tubs, and there was no trouble about getting the water, but people were more afraid of water than of arsenic or stychnin. All fever patients wanted to be let alone. "Let me alone, don't bother me, give me some more phenacetin," was their cry, and when the advocate of the cold bath found himself opposed by the consultant as well as by the patient and the family, then *laissez faire* triumphed over energy.

Dr. BARUCH, in closing, said that his lines had fallen in pleasant places. He had evidently struck a camp of his friends, and he was glad that his paper had aroused interest and discussion; indeed, a great deal more than he had elicited elsewhere. The carrying around of a tub, mentioned by Dr. Barker, reminded him of his own experience in 1875 or 1880, when he used the Ziemssen bath. He was a country practitioner at that time in South Carolina, and he had a tub



that looked like a coffin ; he was surprised that his patients were not often frightened when it was sent to the house ; he would send it to the house and have the patient treated and then have it carried on to another house.

Dr. Smith had inquired about the nerve disturbance. The toxins from the bacillus first attack the nervous system and inasmuch as the nervous system was the power-house for the whole organism, every organ in the body suffered. It was a vicious circle beginning with toxemia, localizing in the intestinal glands, affecting the nervous system and then the heart. When the vasomotor system is so affected the heart becomes incompetent, then the circulation in the organs fails and the lethal conditions in typhoid ensue. If this were an evanescent condition, as for instance, the patient were only delirious like a drunken man, he would not die ; but, here, the peripheral circulation in the skin and liver and in all the organs becomes paralyzed, the resistance to the cardiac impact is diminished and the blood passes through the arterioles as through a lifeless tube and elimination is interfered with. He had seen, after the application of four or five Brand baths, the urine measure rise from 30 ounces to 120 ounces in twenty-four hours. The improved cardiac impulse drove the blood in a more normal condition into the kidneys and better elimination resulted. He insisted upon the Brand method as the most rational treatment because it was based upon pathology and bacteriology. We do not need ground cockroaches for we had gotten out of the cockroach age ; he did want the method taken on faith. New drugs were being continually put on the market ; no rational explanation of their action was given, but the doctor tried some of these antipyretics and found they did give relief from the high temperature or something of the kind, and so continued to use them.

The question asked by Dr. Soper about the normal salt solution. That was not exactly hydrotherapy but it was an application that he used a great deal. He had in mind one case that he had recently seen in consultation with Dr. Woolley, of Long Branch. The patient was sent to the hospital and was in a desperate condition ; the application of the bath was out of the question ; even with the Nauheim salts the patient did not have the proper reaction ; he was called to see the patient again ; the temperature was 104 or 105°, the pulse 140 or 150 and the patient was so saturated with the poison that there seemed to be a complete toxemia ; he recommended an ice bag over the heart.

As a rule, the ice bag was placed over the heart or head or abdomen and kept there for a long time; he had known of one case where the ice bag had been kept over the abdomen for five or six hours, and he wanted his hearers to think what must happen in such a case. The entire skin becomes cyanotic, later it assumes a dark hue because the arterial blood is driven into the deeper tissues, the venous blood remains; hence, there was venous congestion. An ice bag to produce a stimulating effect upon the heart should be placed over the cardiac region fifteen or twenty minutes only and then removed for fifteen or twenty minutes; one should always get the reaction before putting it on again. In this case the ice bag was applied and then he thought of the normal salt solution and ordered four quarts, about one quart at a time, to be introduced high up into the rectum and then allowed to flow out again, for the purpose of absorption and also for the purpose of mechanical irrigation; it had the most happy result; he had never seen so large a quantity absorbed and the patient rallied and made a good recovery.

As to heat stroke, that was a very enticing subject. The treatment that had been commonly used was an illustration of how badly hydrotherapy had been used by the best men, for the teaching had been, the colder the water the better the effect. Several years ago there was an epidemic of heat stroke in New York City and the subject was freely discussed. One prominent physician placed his patients in a bath of floating ice. One of Dr. Baruch's colleagues had reported that he placed his patient in a tub of water at  $110^{\circ}$  and reduced it to  $50^{\circ}$ ; that was hydrotherapy with a vengeance; he gave the bath until the temperature was reduced to normal. The trouble was, the temperature was taken in the mouth, which was only a little better than if it had been taken in the axilla. The only reliable temperature was that taken per rectum, as the rectum was not directly cooled by the cold bath. The most successful men according to the statistics gathered by Dr. Baruch at the time, used water at about  $75^{\circ}$ , and used it with force. The stimulating effect of cold upon the nervous system was not produced by an immense reduction of temperature; One did not stimulate the nerves by blunting them. Water at  $75^{\circ}$  was poured over the patient while somebody rubbed him. The next best mortality was that of the Flower, Homeopathic Hospital; they used plain water from the hose, the temperature being about  $75^{\circ}$  and no baths at all. A heat stroke patient should never be placed in a bath below

60°, and one should be guided by the temperature. He believed a heat stroke was a toxemia and the cutaneous vessels needed stimulation in order to restore the lost heat diffusion.

Dr. Meisenbach's inquiry, if elimination or stimulation was the object. Stimulation resulted in elimination, so that one could not get stimulation without elimination. The enfeebled heart action, and the high temperature, etc., were merely manifestations of the toxins in the circulation and the point was to get at the root of the matter—to get the toxins out of the system. Whether the bath should be tepid, cold or ice water was often a confusing question; that depended entirely upon the case. To reduce the temperature a bath of 95° is more effective than one at 70° or less. The best temperature reducing bath in one of 95° for three or four hours (so-called continuous bath). Such baths had been used very successfully in typhoid and he thought that some time he would use such a bath in some case where he was afraid to use the Brand bath. In order to produce stimulation he would recommend water much below the temperature of the skin.

Dr. Deutsch had asked what was to be expected of the treatment when there were hemorrhages. He never used the bath during the continuance of the hemorrhage, for everything that would stimulate, or shock or arouse the system would be objectionable, but Vogl had shown that the number of cases which had hemorrhage were reduced and the number of hemorrhages were diminished, the number of perforations were diminished and in fact the number of complications that kill the patient were diminished by the strict Brand bath. The Brand bath improved the circulation so there was less sloughing around Peyer's patches and less kidney complications, so that the treatment of hemorrhage by that bath was to prevent it. As an example of the fallacies in the use of hydrotherapy in the septic condition, he said that several years ago in a hospital in New York City they had a good deal of sepsis; the pathologist of that hospital told him that in order to combat the temperatures of 105, 106 and 108°, they used Kibbé's cot, enveloped the patient in a sheet and pured ice water upon him until the temperature became almost normal, and used ice applications on the abdomen. Of course, the patients died. If they had used the cot and sprinkled the patients with cold water at 40, 50 or 60° they might have done some good, but the doctor told him that they died and that he had seen the muscles of the abdomen absolutely frozen without the slightest effect upon the inflammation of the peritoneum. That proved

that the application of ice on the outside did not cure an inflammation on the inside.

Gilman Thompson, twenty years ago, in order to prove that fact, pushed a thermometer through the rectum of a dog so to bulge the abdominal wall and then applied ice bags over the bulb covered by the tissues; the temperature was not affected at all; the tissues were too thick to prevent any effect upon the temperature. Dr. Baruch stated that he used ice in appendicitis cases as an anesthetic because he did not want to use morphin and added that he was guilty of having had the first case of perforating appendicitis that was operated upon successfully. The giving of morphin obscured the symptoms and then the surgeon found the diagnosis obscure, so whenever he had a case of appendicitis and could not get the surgeon at once he put on ice to soothe the parts.

Replying to Dr. Lippe, he said the illustration of the engine was not original with him but was an illustration used by Dr. Hobart Hare, of Philadelphia. Dr. Talbot had said that aside from the reduction of temperature, the promotion of sleep had satisfied him. No prognostic sign in fevers was so important as sleep or want of sleep. When his patient had to be fed on anodynes and hypnotics his prognosis was shaky. The reason patient slept after the bath was because he felt the impetus of new life and his brain felt it, and that was why he slept, and because he slept he got well. It had been asked if the tonic effect of friction would be intensified by the use of sea salt. It would, but the chief effect aimed at in infectious fevers was for refreshment of the nervous system and response of vascular tonicity aroused by the friction. The cold aroused a reflex action and the effect of friction would be intensified by the salt, giving a reddening of the skin which meant an active peripheral circulation. Formerly mustard was used for this purpose but that could be used only a short time and afterward the patient was in great discomfort. By the use of the cold bath the patient got red from the enhanced normal circulation and all the good effects upon the heart ensued. As to the compresses for ovarian neuralgia, he did not wonder that Dr. Gellhorn could not explain it; that was one of the troubles that the hydrotherapist had to face; the hydrotherapist was simply a doctor who used water as one means of treatment; the hydropaths use nothing but water; even ovarian neuralgia they cured with cold compresses.

As to the procuring of tubs, he was glad they could be secured



here, for the department stores did not keep anything that was not called for, and the fact that they had them here was good evidence that the Brand bath was used to some extent. Dr. Shattinger's experience had been similar to his own when he had read his first plea for the Brand bath, before the New York State Medical Society in 1889. Dr. Jacobi and several lesser lights were present and there were two country doctors there, one of whom said that he had seen two patients killed by the bath and the other thought he would not care to resort to it. That had been his experience twenty-four years ago. That the bath would overcome other fevers more efficiently than typhoid was exactly why he advised it as a diagnostic measure. He orders in all suspicious cases with a rectal temperature of  $103^{\circ}$  or over a tub bath of  $90^{\circ}$  with friction for twelve minutes. In four hours if the temperature is still  $100^{\circ}$  or over, a bath at  $85^{\circ}$ , again in four hours at  $80^{\circ}$ , then at  $75^{\circ}$ . If one of these baths reduced the rectal temperature more than  $2^{\circ}$  during the first week of fever - typhoid may be excluded. Dr. Baruch was led to this diagnostic bath by his observation in the Manhattan Hospital in 1891. He gave instruction whenever a patient was brought in with a temperature of  $100^{\circ}$  or over to put him in a tub of  $90^{\circ}$  and reduce the water gradually to  $68^{\circ}$  for half an hour (Ziemssen Bath). One day he had come in and found a man with a temperature of  $106^{\circ}$  in the tub. He had been found unconscious with his dinner bucket in his hand. He had eaten his dinner and vomited some green material. He was pumped out by the ambulance surgeon who suspected Paris green poisoning. His temperature was found to have gone down to  $101^{\circ}$ , after the bath and a diagnosis of typhoid fever was made; next day he was found to have pneumonia, he had no more baths and got well. The next was a case of osteomyelitis. A boy had jumped upon butcher's wagon; he had a temperature of  $106^{\circ}$ , he was bathed and his temperature went down to  $100$  or  $101^{\circ}$ , and the bath were continued with this effect: It seemed an excellent method of treating typhoid fever; however, osteomyelitis developed and the patient was taken to Mt. Sinai Hospital, where he died later.

About a year ago he had found three cases that had been in the hospital under his predecessor, all very able men, for about a week. The diagnostic baths were ordered in each case; in one case he doubted the presence of typhoid, although he had the the Widal reaction; nevertheless, the temperature became normal after he had had

four baths; another case recovered in about four days, and another proved to be typhoid, the rectal temperature only falling one degree after the diagnostic bath. On inquiry, as to who had made the Widal test he found that the undergraduates in the laboratory had made the test and pronounced it positive. Thus, was his confidence in the diagnostic bath established by clinical observation.

He said, hydrotherapy is a scientific therapeusis; it is based upon rational theories, but it does not cure all diseases, in fact, it is not a curative agent at all; it simply restores normal conditions of the circulation more or less permanently according to the temperature and duration of the hydiatric procedures.

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### My Experience With Light Therapy.

Julius Rosenberg supplements a former contribution by giving an additional series of twenty-seven cases treated by means of the ultra-violet rays. He considers these rays as remedial agents of the greatest value, especially for the relief of pain. The cases reported cover a very wide range of material, and the results were encouraging in nearly all instances. The author employs a thirty-five ampere arc with mirror reflectors, and attaches importance to the use of iron-carbon electrodes. He concludes that the ultra-violet rays obtained in this way are a specific remedy in acute muscular pain, such as lumbago, torticollis, and pleurodynia. In cases of acute and chronic neuritis these rays will always relieve pain, and in most cases, especially acute forms, effect recovery. The bactericidal powers of chemical light rays are easily demonstrated in inflammatory conditions of the skin of parasitic origin. In acne and furunculosis the curative effect is both prompt and certain. The results in rheumatic arthritis have not been encouraging, thus differing from those reported by German authors. This may in part be due to the limited number of treatments permitted. In acute and chronic pleurisy and bronchitis the application of the ultra-violet rays is undoubtedly beneficial, and it is also possible that the rays could be of assistance in the treatment of pulmonary tuberculosis. The results in gonorrheal peritonitis and catarrhal inflammation of the deep urethra and adjacent structures are encouraging, and justify further trials. The author believes that the ultra-violet rays will be of benefit in gonorrheal and tuberculous infections of the joints; also that the pains accompanying locomotor ataxia may be relieved and controlled.—*Med. Record.*

## REPORTS ON PROGRESS.

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### SURGERY.

In Charge of M. G. GORIN, M.D.

#### The Renal Catheter as a Means of Detecting Renal and Urethral Calculi.

Howard Kelly (*Am. Jour. of Urology*). Under the above title the author summarizes the results of 38 cases from his personal experience, and gives some interesting comparisons from x-ray and wax-tipped catheter methods of diagnosis. In one case, a very fat woman, difficult to examine by the ray, the wax-tipped catheter was scratched, giving evidence of a stone in the pelvis of the kidney, but on operating no stone was found in that location, and the ureter was accordingly catheterized, from the opened pelvis of the kidney and the stone detected near the lower extremity, whence it was removed per vaginam. Another case where the waxed catheter failed to show the presence of a stone, it was revealed by the ray, and on operation it was found that the stone was in an abscess cavity where the catheter could not reach it. In another case where the catheter failed and the ray diagnosis showed a stone, it was found to be due to a phlebolith in the vaginal vein. In 30 cases of the 38 where the wax tipped catheter was used it was scratched in 24, and the diagnosis of stone confirmed by operation. Some of the causes for failure have been just related. Another case was one where the catheter showed the presence of a stone while it was in the ureter but it subsequently was pushed up into a dilated renal pelvis where it was out of reach of the catheter.

The wax-tipped catheter is made by dipping the catheter into a mixture of two parts of dental wax with one of olive oil, and allowing it to dry in the air. This coats the catheter so that it presents an exceedingly sensitive and highly polished surface, that is abraded by the least contact with any hard, rough surface. Care must be taken the introduction to avoid touching the sides of the speculum, and also that

the catheter does not come in contact with the vulvar hairs, when it is withdrawn. It is well to carefully examine the waxed surface before introduction in order to detect any irregularities which may have resulted in the coating, and which might be mistaken for scratch marks. It is advisable to confirm the diagnosis by catheterization on two separate occasions. When the stone is lodged low in the ureter the position is indicated by a long scratch extending the distance between the calculus and the upper part of the pelvis of the kidney. The author has never known the wax-tipped catheter to fail in the diagnosis of a ureteral calculus. It may fail when the stone is lodged in the renal pelvis when the stone is small and the pelvis dilated. The author concludes with reference to the practicability of the ray that it can not altogether replace the wax-tipped catheter because it is not always convenient of application. It is necessarily expensive and can not well be used every time a calculus is suspected. But operators have the necessary skill, and no confidence can be placed in a poor ray operator. The ray is not without danger, as four of my cases were burned and one very badly. The ray often fails in very stout patients, and is not always reliable in uric acid calculi. The value of the ray lies in the fact that it gives the precise location of the stone, and often a knowledge of the number, and may succeed in certain cases where the wax-tip fails.

### A Rare Breast Case Illustrating the Teaching of Syme.

A large hard mass in the breast of a woman, over 30 years of age, attended with axillary enlargements is to be regarded, and justly so in most cases, as cancerous. Dawbarn (*Am. Jour. of Surg. and Gyn.*) relates the following interesting history of an exception to this rule. The patient had been referred to him with diagnosis of cancer of the breast, and on examination showed a large, very hard mass in the upper outer quadrant, with a slight enlargement of the axillary lymphatics. The history of cancer was somewhat atypical, and not being convinced of the correctness of the diagnosis the operator made an incision straight through the mass, when a jet of pus gushed out from a pocket containing perhaps half an ounce. The wall of this abscess was an inch in thickness, and very dense. It proved to be a staphylococcus infection, where doubtless the cellular activity was not adequate to destroy the microbes and the microbes were not virulent enough to spread, the conflict producing a dense wall which simulated



a cancerous growth. The wound healed nicely under proper drainage, and the induration, disappeared. This was the second similar case in the author's experience. A third case occurred in Mt. Sinai Hospital where the house surgeon removed a seemingly cancerous breast, and on cutting the growth open after removal found that only a chronic staphylococcus infection had existed. At the operation Dawbarn was asked whether, if the growth had been cancerous, cutting into it in this manner would not have been dangerous, owing to the fact that the open lymphatics would present an excellent opportunity for the spread spread of cancerous infection. Such a danger would have existed had the radical operation been deferred, and if the growth had proved malignant, excision would have been proceeded with immediately. Another point of interest brought out by the writer and previously by the younger Gross in a paper upon the subject, viz., the value of beginning the operation by removal of the axillary contents first and the breast last. The writer claims that according to the usual method the operator by involuntary massage tends to spread the cancerous lymph current with epithelial cells into the circulation, thereby running the risk of future rapid internal development. The writer insists that this is a very important point, and claims to have seen several cases where the cancer very rapidly reappeared internally, generally in the lungs, so as to make the cause reasonably certain.

#### **Inflamed Appendix Found in the Sac of a Femoral Hernia.**

This most remarkable condition was found to exist in a patient of Dr. Sand's (*Ibid.*) A widow, aged 26 years, applied for treatment of a swelling in the classical site for femoral hernia on the right side. The swelling was found to be about the size of a duck's egg and very tender when manipulated. A diagnosis of incarcerated femoral hernia was made. Her temperature at this time was  $101^{\circ}$ , and the swelling irreducible. Upon opening the sac there was quite a gush of peritoneal fluid. There was neither intestine nor omentum in the sac, but only a firmly adherent appendix with the distal end very much ulcerated and enlarged. The appendix was amputated and the wound closed in the usual way for the relief of femoral hernia. The patient made an uneventful recovery. This report adds another to the many unusual sites in which an inflamed appendix has been found.

## BIOGRAPHICAL SKETCHES.

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### DR. WILLIAM MARCELLUS MCPHEETERS.

Dr. William M. McPheeters was born December 3, 1815, in Raleigh, North Carolina, and died in St. Louis March 15, 1905. His father, William McPheeters, was a Presbyterian preacher of note. Dr. McPheeters received his education at the University of North Carolina, and his medical education first under the preceptorship of Dr. Hugh L. Hodge, and then in the Medical Department of the University of Pennsylvania, obtaining his degree in 1840. He was the oldest living graduate of that school. In 1841 he came to St. Louis, and with Doctors Pope, Moses, J. B. Johnston and Clark he established the first public dispensary west of the Mississippi River. In 1843 he was chosen Professor of Clinical Medicine and Pathological Anatomy in the St. Louis Medical College.

During the Civil War, having cast his fortunes with the Confederacy, among other positions he was medical director on the staff of General Sterling Price. Resuming his private practice after the war he became a celebrated practitioner.

In 1866, he was appointed Professor of Materia Medica and Therapeutics in the Missouri Medical College, which position he held until 1874.

With Dr. M. L. Linton, in 1845, he edited the *St. Louis Medical and Surgical Journal*.

One of his notable contributions to medical literature was his "History of Epidemic Cholera in St. Louis," which he rather than dispose of financially, gave to our own medical library.

His acute powers of observation and logical mind bore fruit in a long series of medical articles—contributions to medical science, yet he put nothing in print that had not a distinct practical value.

He held many positions of honor, once having been Vice-President of the American Medical Association, and was a man of pronounced Christian character.

He was twice married. His last wife, who was Miss Buchanan, of this city, with three of their six children, survives him.



**DR. WILLIAM MARCELLUS McPHEETERS.**

*Born in Raleigh, North Carolina, December 3, 1815; Died in St. Louis,  
March 15, 1905.*

*(See Biographical Sketch, Page 252).*





## BOOK REVIEWS.

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*The Courier of Medicine Company will mail, postpaid, any book reviewed, on receipt of price.*

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### Practical Pediatrics.

A Manual of the Medical and Surgical Diseases of Infancy and Childhood. By Dr. E. Graetzer, editor of the "Centralblatt f. Kinderheilkunde" and the "Excerpta Medica." Authorized translation, with numerous additions and notes, by Herman B. Sheffield, M.D., instructor in diseases of children, and attending pediatricist (O.P.D.) New York Postgraduate Medical School and Hospital, etc. Crown octavo, flexible cloth, round corners, pages, 544. Price \$3.00. F. A. Davis Company, Philadelphia.

This manual is based on Henoch's work, the author having been a student of his. Without being fulsome we can conscientiously say this is one of the best small sized books in print. Thoroughness characterizes this work. The chapters on the infectious diseases, pneumonia, etc., are particularly good. Another excellent feature is the manner in which treatment is offered. The only criticism which we could offer is that the chapter on the diseases of the blood and bloodmaking organs might be enlarged.

### Eye, Ear, Nose and Throat Nursing.

By A. Edward Davis, A.M., M.D., professor of diseases of the eye in the New York Postgraduate Medical School and Hospital, and Beaman Douglass, M.D., professor of diseases of the nose and throat in the New York Postgraduate Medical School and Hospital. With 32 illustrations. Extra cloth, pages 318. Price, \$1.25. F. A. Davis Company, Philadelphia.

Every department of medicine seems to issue a text-book for nurses. In fact, a whole library of these books is now required by the professional nurse. We are not sure that this book fills a great want to the nurses, but for the general practitioner and student it is ideal. It tells just the things which our lecturer forgets to tell us while explaining the technic of operations. It is the nursing that counts, even in eye, ear and throat diseases.

### Pneumonia and Pneumococcus Infections.

By Robert B. Preble, A.B., M.D., professor of medicine, Northwestern University. Illustrated. Price, \$1.00. Cloyd J. Head & Co., Chicago.

In view of the fact that the prevalence of pneumonia is as great as ever and the death rate very high a special work on this is timely. The subject is treated in an exhaustive manner.

### The Practical Medicine Series of Year Books.

Comprising 10 volumes of the year's progress in Medicine and Surgery, issued monthly under the general editorial charge of Gustavus P. Head, M.D., Prof. of Rhinology and Laryngology, Chicago Post-Graduate Medical School. The Year Book Publishing Co., 40 Dearborn street, Chicago. Price for the series, \$5.50, in advance.

Volume X.—Skin and Venereal Diseases. Nervous and Mental Diseases. Edited by W. L. Baum, M.D. and Hugh T. Patrick, M.D.

It helps us to understand more clearly the present to stop at times and think over the immediate past, summing up our failures and trying to find the reason why, examining critically our successes to see if they may not be made more complete. We go patiently along working out our daily task, thinking very little of the combined effect of the months or years of toil. It may encourage us to see what has been accomplished by others in the same field, and also to get a vivid glimpse of what others are doing in other fields.

In the above series we get clear accounts of what has been accomplished in the way of substantial advancement.

In the particular book under discussion Patrick and Mix seems to have sifted pretty thoroughly the year's literature. If they have overlooked any important thing we are unable to point it out. If you want to know "what's doing" in neurology he can find out by reading carefully the review under mention. Psychiatry is also reviewed and the essential gain in knowledge of that subject is duly set forth.

We recommend this series not only to the general worker but to the specialist in the various departments represented.

### The Doctor's Recreation Series.

Charles Wells Moulton, general editor. A. J. Saalfeld Publishing Co., Akron, Ohio, Chicago and New York. 1904.

Volume III.—In the Year 1800, being the relation of sundry events occurring in the Life of Doctor Jonathan Brush during that year. By Samuel W. Kelley, M.D.

This is a real novel for the physician. The professional ear-marks are found throughout the book. We have enjoyed this story more than any that we have read in recent years. We were surprised at the startling scenes portrayed by Dr. Kelley. It proves that there is something else in the physician's life besides the cold scientific facts. In actual practice science mingles with human sentiment—happiness and misfortune. This story tells in an interesting way how these things were mixed in the year 1800.

### Transactions of the Medical Association of Georgia.

Fifty-fifth Annual Session held at Atlanta, Ga., 1904. Published by the Association.

This neat, well-bound and clean volume is a credit to the Association and contains many valuable memoirs, only a few of which will be referred to: Dr. Hutchins considers the Roentgen rays the best treatment for non-metastatic cases of skin-cancer where excision is impracticable.

Drs. Harbin and Harris call attention to the pressing need of compulsory vac-

cination. They have found that smallpox exists to an alarming degree in Georgia and that quarantine is helpless without compulsory vaccination.

Dr. Stirling calls attention to some interesting Head Cases. He has found that the pain in antral suppuration is more often felt in the forehead than in the jaw, also that glaucoma should be more frequently recognized by the general practitioner and that atropin should never be given unless we know why.

Dr. Fowler lays special stress on the fact that the true cause of ulcer must be found out before treatment can be scientifically carried out.

Dr. Hubbard mentions that calomel should be given throughout the attack of typhoid. He believes in the eliminative and antiseptic treatment.

Dr. Nicolson truthfully says that no case of abdominal pain should be considered of little importance; every case should receive close attention and examination before being prescribed for.

Dr. Morgan does not think that trauma is a frequent cause of hernia.

Six very interesting tornado victims are reported by Drs. Downey and Rudolph.

Many of the other papers will be found interesting.

### **How to Study Literature.**

A Guide to the Intensive Study of Literary Masterpieces. By Benj. A. Heydrick, A.B., professor of English literature, State Normal School, Millersville, Pa. Third edition, revised and enlarged. Price, 75 cents. Hinds, Noble & Eldredge, New York.

To those physicians who love the study of masterpieces this little work will be found very useful.

### **General Catalogue of Medical Books.**

P. Blakiston's Son & Co., Philadelphia. Price, 25 cents.

This is a handsomely-bound pocket manual which will be found valuable for those interested in buying medical books.

### **Hare's Practice of Medicine.**

A Text-book of the Practice of Medicine, for Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., professor of therapeutics and materia medica in the Jefferson Medical College of Philadelphia.

Lea Brothers & Co., Philadelphia and New York, announce for early publication a complete new work by this eminent medical author.

### **Hand-Book of the Anatomy and Diseases of the Eye and Ear.**

For Students and Practitioners. By D. B. St. John Roosa, M.D., professor of diseases of the eye and ear in the New York Academy of Medicine, etc., and A. Edward Davis, M.D., professor of diseases of the eye in the New York Post-graduate Medical School. Square 12mo, 300 pages. Extra cloth, \$1.00. F. A. Davis Company, Philadelphia.

A book, however brief written, by such eminent physicians deserves careful consideration. Indeed it has an authoritative imprint

throughout and for students and the general practitioner will be found very helpful. The special attention to practical details make it a valuable, concise guide in practice.

### **Beauty Through Hygiene.**

Common sense ways to health for girls. By Emma E. Walker, M.D., member of the New York Academy of Medicine, etc. Illustrated. Price, \$1.00. A. S. Barnes & Co., New York. 1904.

This is a book which physicians should recommend to the mothers of girls. It comes from an authoritative source and contains science and common sense in a style readily understood by the masses of educated mothers and daughters.

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### **Tabes.**

Goldflam, having observed that in cases of tabes the typical triad of symptoms is not always present, that is to say, pains, loss of knee jerks and the Argyll-Robertson pupil, has attempted to discover by investigation which symptom actually is the earliest. He reports, as an example of a very early stage of the disease, case of a man, 46 years of age, who for 16 years had had fulgurant pains in a localized area on the legs. No other symptoms could be recognized. Six years later it was observed that the pupils were narrow and did not react to light. The left Achilles tendon reflex was absent, and all the other reflexes were normal. Later the other Achilles tendon reflex was lost, and all the characteristic symptoms of tabes appeared. Goldflam believes, as a result of observation in this case, and some others, that the earliest symptom is the lancinating pains, and these, when typical, are perhaps, the most characteristic symptom of tabes. He believes the Achilles reflexes are just as important as the knee jerks, and that changes in them are of great significance as a symptom of spinal disease. Goldflam agrees with Babinski that in tabes they are often affected before the knee jerks.—*Phil. Med. Jour.*

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### **Announcement.**

Of this issue we mail 5,000 extra copies with a view of increasing our subscription, see subscription blank, advertising page 3.



ST. LOUIS

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ORIGINAL CONTRIBUTIONS.

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The Shiga Bacillus.

By CARL FISCH, M.D.,

ST. LOUIS, MO.

I BELIEVE that in giving to the remarks that I am going to make tonight the title "The Shiga Bacillus," the program committee did not mean that I should give you a full description of all of the bacteriologic, biologic and pathologic qualities of this micro-organism. This would be a very tedious and unprofitable work, especially for the members of this Society, that is mainly interested in the relations of the bacillus to pathologic conditions, and, as to that, mainly to those occurring in children. That Shiga's, or let us rather say, the dysentery bacillus has come to have such relations is the work of only a few years. Let us briefly review on what material they were founded.

It was in 1898 that Shiga discovered in cases of an epidemic of dysentery in Japan a bacillus that was well characterized and was found in great numbers in the dejecta of the patients. The fact that it was found only there and the further observation that the bacillus was agglutinated by the serum of the patients carrying them in their intestines was for

a long time the only evidence of their etiologic relation to the dysenteric process. Further study has seemingly confirmed this assumption, and enthusiastically the bacillus was proclaimed as the long-sought for causative agent of the epidemic and sporadic (not amebic) dysentery; this disease, raging all over the world, seemed after this discovery to be made amenable to a similar handling as that employed for other diseases of a uniform bacterial origin.

Shiga's discovery was soon followed by Kruse's investigations who, in Germany, found in cases of dysentery the same bacillus; by Flexner and Strong, who found it in the Philippines and in the United States, and up to date, almost all over the world the bacilli have been found in cases of this kind. The causative agency of the bacillus is generally assumed, although even now the main evidence consists only in the nearly constant presence of it in the stools or in the dysenteric lesions, partly in the agglutinating qualities of the serum of individuals harboring it. This is said to call attention to the fact that an absolute proof for the etiologic part that this micro-organism almost certainly can play, has not been brought so far in compliance with the laws set down by Koch. Circumstantial evidence, however, is so weighty and favorable that it would be futile to insist on the direct proof before receiving this etiologic factor in our considerations in a scientific study of and practical dealing with human diseases.

Naturally the study of the dysentery bacillus has occupied a great part of the bacteriologic work of the last few years. It has led to many interesting results, but to none that would allow of being turned to practical use, especially not as far as the treatment of the disease is concerned. The savage devastations, so often caused by the latter, have directed the attention to means of prevention. Like in typhoid, it has been seen that the infectiousness is in most cases direct—from patient to patient, a contact with the bacilli excreted by the infected individual. Although the general sanitary and hygienic measures so much vaunted today are by no means discredited, more stress begins to be laid on the elimination of the possibility that a dysenteric individual may infect other persons. The destruction of the bacilli excreted with the feces is to be made the main factor in this fight, the isolation and constant observation of the patient as to the strict performance of the necessary measures.

In this disease, also, like in typhoid, the difficulties in this attempt are multiplied by the fact that individuals, perfectly healthy or showing only indefinite symptoms, certainly not exhibiting the picture of a dysenteric, may carry in their intestines and, therefore, disseminate with their stools the dysentery bacillus, thus becoming sources of infection. In Germany the importance of this factor is fully recognized and the directions published for the performance of all these measures are as strict as are those for typhoid cases. Since we have learned that the bacillus is highly adapted to life in the human organism, the latter is its main source for its dissemination. If we destroy them, as they leave it, the principal source of infection is eliminated.

The means for recognition and detection of the bacillus have been highly elaborated and allow today to establish its presence with a high degree of certainty in a short time.

It is only natural that attempts have not lacked that intended to deal with the disease by means of specific remedies. Since the bacillus was known it seemed promising to influence the course of its ravages by antitoxic or bactericidal sera. All of these attempts have failed. Like the typhoid and cholera bacillus, the dysentery organism does not secrete a toxin, so that the production of an antitoxin was, *a priori*, excluded, like it is in typhoid and cholera. The hope to achieve success by a bactericidal serum could only be entertained under a wrong impression of the action of such a serum on an infected organism. If destruction of the bacillus through such a serum was the object to be obtained it was easy to do. Animals, even horses, are easily immunized against the dysentery bacillus and furnish a material of high bactericidal potency. The same experience was had before with other bactericidal sera, they prevented disease, if given before or at the time of infection, but in no case had such a serum influenced the course of a fully-established infection, in spite of the numerous favorable reports to the literature of cured cases of typhoid or cholera. On the contrary, in animal experimentation it can be shown that the administration of fresh sera acts deleteriously and kills the animal. The toxic effect of diseases like typhoid or dysentery is not due to a toxin secreted but to the toxic effect of the proteids of the bacilli disintegrating in the tissues of the infected organism. These proteids may be called endotoxins and a certain amount of them means a fatal

quantity. Small doses are withstood by the normal reactive properties of our organism, fatal doses overpower it. If the chances would be there in the form of the necessary complement a large dose of typhoid-immune serum would kill the patient at a stage of the disease when we know his system is flooded with a number of bacteria, the suddenly-freed disintegration-products of which would form certainly more than the necessary fatal dose of endotoxin. Just the same conditions obtain for the dysenteric infection; such a serum may be used for prophylactic purposes or during the stage of incubation of the disease, where the number of bacilli present would not as yet aggregate if dissolved to the fatal dose; it can never do any good in an organism flooded with innumerable bacteria. That hopes for a success could be entertained was due, as said before, to a wrong conception of the action of bactericidal sera. The less said about the work done in this line, the better.

The remarks so far made deal with bacillary dysentery from the point of view that the disease is etiologically a unit. However, this belief that Shiga's discovery has aroused has been dispelled by the researches made during the last few years. Holding to the belief that a bacillus is the causative agent of the disease, we must admit today that it is etiologically different, although clinically identical forms of dysentery exist caused by different bacilli. Very soon after the comparative work on the various forms of organisms isolated in different parts of the world as Shiga's bacilli was begun, discrepancies between their biologic character were noticed, that at first were charged to the sources of error inherent to our methods of experiment. But after a short time it became clear that the differences found were real, and that in fact there existed a number, perhaps a great number, of altogether different dysentery bacilli, each of them able to produce the picture of what is called, clinically, dysentery. Five or six different forms are so far known, that by their biologic qualities can be differentiated, and that in their reactive effect on the infected individual differ entirely. It is very probable, even certain, that in our country alone we have not to deal with a single form of every where identical type, but with a greater number of species or varieties. Several of these have been closely studied and compared, so that, if found, they can be identified, but it is very unlikely that the supply is already exhausted and



that the coming years will not reveal a great variety of dysentery bacilli in different groups of cases. We have to figure with a great family of dysentery bacilli, that is at the bottom of the totality of the cases of dysentery occurring, although we know that certain members of it are found very widely disseminated. The future will spread more light on the importance and frequency of the single ones and, perhaps, thereby enable us to act upon them. At present the investigation of the etiology of dysentery is as yet in such an unsettled state that definite ideas can not be entertained.

The difficulties have become more serious through the bewitching complexity that a closer study of the agglutination reaction, alleged to be one of the most reliable footholds of the investigations, has revealed. If we follow Park's publications the possibilities of errors and misinterpretations are so immense that it will take a long time before a satisfactory basis is created for the building up of a systematic procedure. This obtains, too, for the investigations designed to carry the conception of bacillary dysentery to so far illy-understood classes of diseases—the summer diarrheas of infants. I need not remind you of the work of Duval and Bassett, that is well known to you and that seemed to lift a load from the heart of every pediatricist baffled by the capricious and intangible peculiarities of these disturbances. Dysentery bacilli were found in almost all of them, slight agglutinations were considered as sufficient proof for their etiologic meaning.

I do not want to say that nothing of this work will withstand the critic of future investigations, but that in its entirety it will not persist. The mere presence of dysentery bacilli means very little, some even think that they are frequent or normal inhabitants of the infantile intestinal tract. Their etiologic relation to summer diarrhea has not been proven, but in a few cases, although that may be due simply to the insufficiency of our methods. The very careful research instituted with all means of our present knowledge is unable to establish the correctness of the bacillary origin of summer diarrhea in the sense of the authors mentioned, is shown by a late publication in the *Journal of Infectious Diseases* of February, 1905. Clinical identical cases of ileocolitis were exhaustively investigated without there being any evidence found, that in each of them at least dysentery bacilli were only present, much less that they had any relation to the pathologic process.

As you see, the depth of our knowledge on the relations of Shiga's bacillus to so-called dysentery is as yet not very great. The importance of the disease in influencing the public welfare will continue to be a stimulus for further research and elucidation. So far, we may assume that the only benefit derived from the bacteriologic study of dysentery is the recognition of its bacillary origin and of its dissemination. This at least, has given a definite means to work against it—by preventing it.

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### Vesicovaginal Fistulæ.

By ROLAND HILL, M.D.,

ST. LOUIS, MO.

PRIOR to the year 1845, vesicovaginal fistulæ, either large or small, were considered to be practically incurable. In this year, J. Marion Sims made the first successful operation in a case of this kind that has been reported. He pared the edges of the fistula, sutured the freshened surfaces together, and was pleased to find his patient cured.

Some years later, another advance was made in the treatment of these lesions, when Thomas A. Emmet showed the necessity of bringing these tissues together without tension, and devised the plan of making parallel incisions through the vaginal mucous membrane so as to entirely relieve tension on the sutures.

In 1894, Machenrodt, of Berlin, conceived a plan of operation applicable to even large fistulæ, that were hitherto considered incurable. His idea was to separate the bladder from the vagina, and suture each separately. This principle is the one that practically underlies the successful treatment of those extensive cases in which the vesicovaginal septum is completely torn across.

Thus, Kelly<sup>1</sup> states that in operating on cancer of the uterus the bladder is sometimes injured, and a vesicovaginal fistula results. He advises in these cases the opening of the abdominal cavity widely, from side to side, so as to free its (the bladder's) connections from the vaginal vault, and render it moveable.

McGannon, of Nashville,<sup>2</sup> reports having operated on six cases of extensive fistula, in which the bladder around the lesions was thoroughly freed from its surroundings, and sutured separately, with perfect results.

Paul F. Munde,<sup>3</sup> and other observers have reported the suturing of the uterus in position to partly fill the gap in some of these extensive cases, with good results. However, by the use of Machenrodt's principle, it is doubtful if this will often be necessary.

My object in reporting this case today is to call attention to a new method of treatment, applicable to small fistulæ that has proved a success in my hands, and also in the work of some of my friends.

Mrs. T., white, aged 23 years, was referred to me by Dr. James Stewart, of Holstein, Mo., October 23, 1903. Her previous history is uninteresting, as she had always been in good health.

On January 26, 1903, she was confined; labor started at 12 p.m., and at 10 a.m. the baby was delivered after very severe use of the forceps, the child being stillborn. Immediately after labor, urine began to escape entirely through the vagina, and ran away just as it was secreted, rendering the patient from that time on perfectly miserable.

An examination showed a small vesicovaginal fistula.

On May 13, 1904, an operation was performed for the closure of the fistula, but it failed to heal, and the wound reopened on the third day. A second operation was performed on May 21st, but it was also unsuccessful, as the fistula again became patent on the fourth day after the operation. A third operation was performed early in June, but failed to produce the desired result, as the fistula began to leak again on the fifth day.

I do not know what technic was employed in these operations.

When she came to me her condition was deplorable, as the urine was all coming through the vagina, rendering the patient most wretched. An examination showed a vesicovaginal fistula that must have entered near the center of the trigone of the bladder. The patient was sent to the Baptist Sanitarium, and on October 23, 1903, operation was performed.

The patient was put under general anesthesia, chloroform being used. The parts were retracted, and the fistula brought

well down with small tenaculum forceps. It was found probably 1/4-inch in diameter, and its edges were indurated from the previous operations.

With a knife a circular incision was made around the fistula, well outside of the scar tissue, and down to the bladder. The vaginal mucous membrane and scar tissue in this area were then dissected off with the exception of the fistula itself, which was not cut. A catheter was inserted through the urethra, and out of the fistula. The next step was to put a purse string suture around the end of the fistula, using small, chromicized catgut for this purpose, and the threads were crossed in a slip knot. The catheter was next threaded with the ends of the chromicized catgut, and drawn out through the urethra, thus pulling the fistula up into the bladder, and at the same time tightening the slip knot around its end. After the pulling of the fistula up into the bladder, we had a funnel-shaped depression to close. For this purpose I used three layers of chromicized catgut, No. 1, in the vesical wall. The vaginal mucous membrane was closed with sutures of silk worm gut. There was very little constitutional disturbance after the operation.

A soft rubber catheter was left in for twelve days, and the patient confined to bed for that length of time. The chromicized catgut sutures came out of the urethra in five days. The silk worm gut sutures were removed on the eighth day. A small pack of antiseptic gauze was left in the vagina to support the parts, for ten days.

On the twelfth day, patient was allowed to dispense with the catheter, and on examination the fistula was found cured. Fourteen days after the operation she left the hospital entirely relieved of her trouble.

The method used in this case is a comparatively unknown one, and so far as I know, has been used but little.

Successful operations on fistula, according to this procedure, have been recently reported by Dr. Francis Reder, and Dr. Robert Amyx, of St. Louis. It is certainly a very logical way to close these fistulæ, and I believe will give better results than any of the operations in more common use.

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<sup>1</sup>Kelly.—Johns Hopkins Bulletin, Vol. 13, page 73, 1902.

<sup>2</sup>American Journal of Gynecology and Obstetrics, Vol. 18, page 391, 1901.

<sup>3</sup>Medical Record, January 21, 1899.



## The Baby Incubators on the "Pike."

A Study of the Care of Premature Infants in Incubator  
Hospitals Erected for Show Purposes.

By JOHN ZAHORSKY, M.D.,

ST. LOUIS, MO.

*(Continued from page 219, April Number).*

### THE QUANTITY OF WATER NEEDED.

Before dismissing the general subject of feeding it is necessary to point out that since the infants are kept constantly in a very warm, and often dry air, evaporation of water is very rapid; consequently, an additional quantity of water must be supplied, especially during the first few days. The consequences of an insufficient water supply will be studied under a different topic. This water is best supplied by diluting the milk given with a 3 to 5 per cent sugar solution. Equal parts of mother's milk and the sugar solution is a very good mixture with which to begin. An additional supply of sterilized water can be given per rectum. It is well to try to give as much water (including that given in the milk) as is represented by one-sixth of the body weight. Thus, if an infant weighing 1500 grams is given 65 cc. of milk on the second day, he should receive sufficient water so that the total fluid is near 250 cc. By doing this all tendency to inanition fever or other complications may be avoided. If the milk has been diluted and this infant takes 130 cc. of liquid by the mouth, an additional 120 cc. must be given by the rectum in two or three injections. It is unnecessary to state that this water must be at a temperature of about 99°.

### VI.

#### THE MORBIDITY.

While we attempt to formulate general rules which will obviate all evils, the rearing of premature infants is such a complex problem that special pains must be taken in each individual to prevent diseases and symptomatic disorders. The physician's work consists in preventing these disorders and, if they arise in spite of care, in alleviating them. The prema-

ture baby is most susceptible to a variety of influences which only exceptionally impress the healthy infant born at term; hence, their diseases require special study. Congenital malformations need not be discussed here.

The functional derangements which need special study, since they are most frequently connected with the mortality, may be classified under four heads:

1. The Respiration.
2. The Temperature.
3. The Digestion.
4. The Nutrition.

What additional light has our study at the Baby Incubators on the "Pike" thrown on these subjects?

#### CYANOSIS, APNEA, ASPHYXIA.

The most formidable derangement of the respiratory function is the failure to breathe, or apnea, and is characterized by cyanosis of the skin and mucous membrane. The appearance of severe cyanosis always signifies that the infant does not make sufficient inspiratory efforts. I will use the term apnea to signify absence of respiration due to insufficient excitation of the respiratory nerve centers. Asphyxia is more properly applied to those cases in which some obstruction to the ingress of air exists. However, I do not wish here to enter on any controversial points relative to the proper use of these terms. This tendency to cyanosis depends partly on the atelectasis present, but more especially on the feebleness of the respiratory muscles and, above all, on the lessened irritability of the nerve centers.

Cyanosis is the principal cause of death among infants weighing less than 1200 grams. All the infants under this weight, during my service, died of a single or repeated attacks of cyanosis. This derangement, then, merits the most careful attention.

It is astonishing what feeble respiratory movements on the part of the infant is sufficient to insure an adequate supply of oxygen. When these movements stop the infant which has a very red appearance shows, after a few moments, a dusky red color, this gradually deepens into a bluish red, dark blue and, finally, almost black color. If the asphyxia persists pallor supervenes, which usually means death, that is a failure of the heart also. What brings on these attacks after an infant

has breathed very well? Budin has very clearly laid this down (*Le Nourrisson*, page 29).

Besides the reduction of temperature an insufficient quantity of nourishment is given as a principal cause. Perrett also gives the reduction of the body temperature and insufficient alimentation as the principal causes of cyanosis. Little else on this subject is to be found in literature.

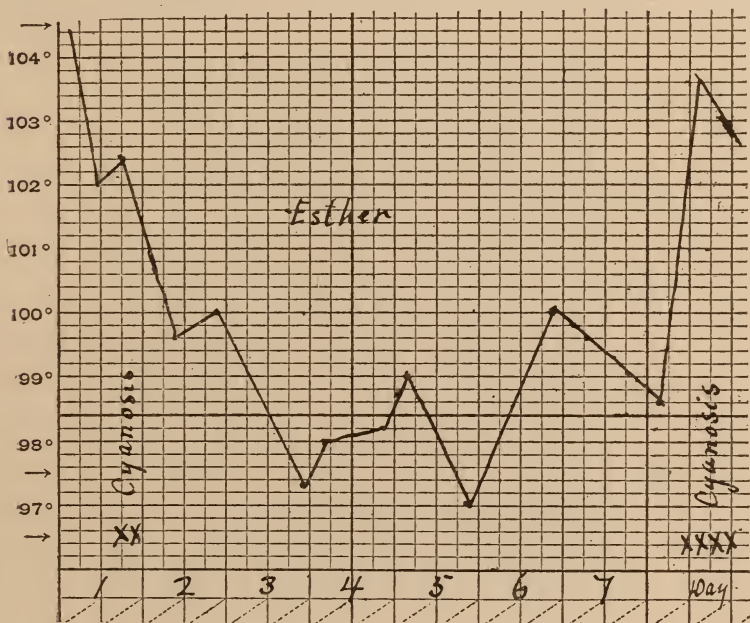


CHART 16.

From the study of our records the etiological factors of cyanosis appear to be many. In the first place the birth weight of the infant has a marked influence. Infants weighing less than 1200 grams are almost invariably attacked. So also a gestation of less than 28 weeks seem to endow so little breathing capacity that cyanosis would almost invariably appear. Most infants do not die of one attack; very commonly several attacks preceded death. Cyanosis, especially if the attacks would be prolonged or frequently repeated, was invariably accompanied by a reduction of the rectal temperature, even when the baby was not removed from the incubator. The suspension of respiration leads to a lessened tissue oxydation, and thus predisposes to other attacks

The next question to be answered is what relation has the

rectal temperature to the appearance of cyanosis? Budin gives the cooling of the body as a cause, and no doubt he is correct. On the other hand, it must not be forgotten that the cooling of the skin is one of the most powerful stimulants to respiration (see Knapp, *Scheintod der Neugeborenen*, for a discussion of this subject). Furthermore, an elevation of temperature also endangers life by causing the appearance of cyanosis. This is well exemplified by a long series of cases

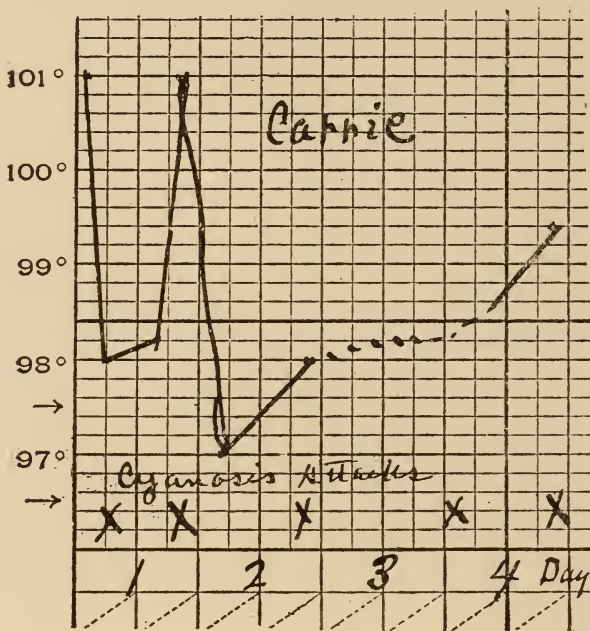


CHART 17.

(First Series) in which the incubator was kept at a relatively high temperature (94 to 98°). See the relation of the high temperature and cyanosis in Charts 16 to 21. Especially in the case of Esther (Chart 16) the cyanotic attacks indicated by the sign X, were manifest only when the rectal temperature was over 102°. Hence, an elevation of temperature over 102° predisposes to cyanosis. This is another reason why the incubator should not be kept too high. But even when the temperature is perfectly normal (Chart 21), as in the case of Robert, repeated attacks of cyanosis may appear.

An inquiry into the other direction is less definite. Many infants weighing more than 1200 grams had a rectal temperature of 95.3° without the appearance of cyanosis. Yet it can



not be denied that cyanosis is the dangerous symptom of too great loss of heat, but it could not be determined at what temperature it is likely to appear. Two infants who were admitted with a temperature of  $93^{\circ}$  did not show this symptom. As in elevations of temperature it is often impossible to decide whether it is the reduction in temperature or the cause back of this reduction that is responsible for the respiratory cessation. To be more specific, a few cases may be cited:

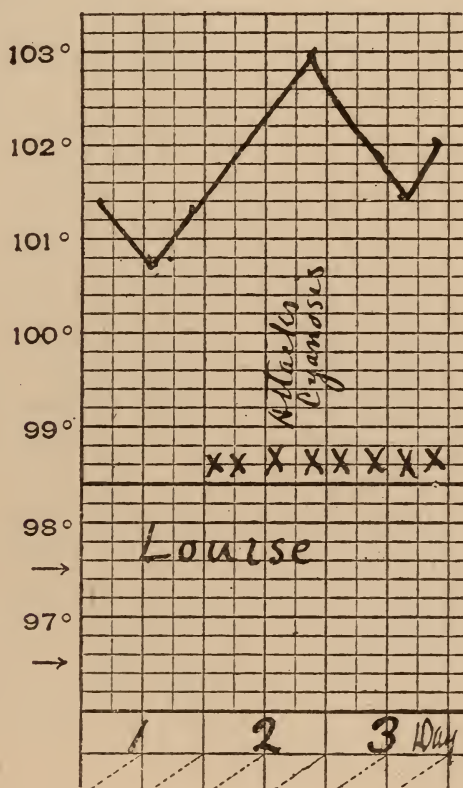
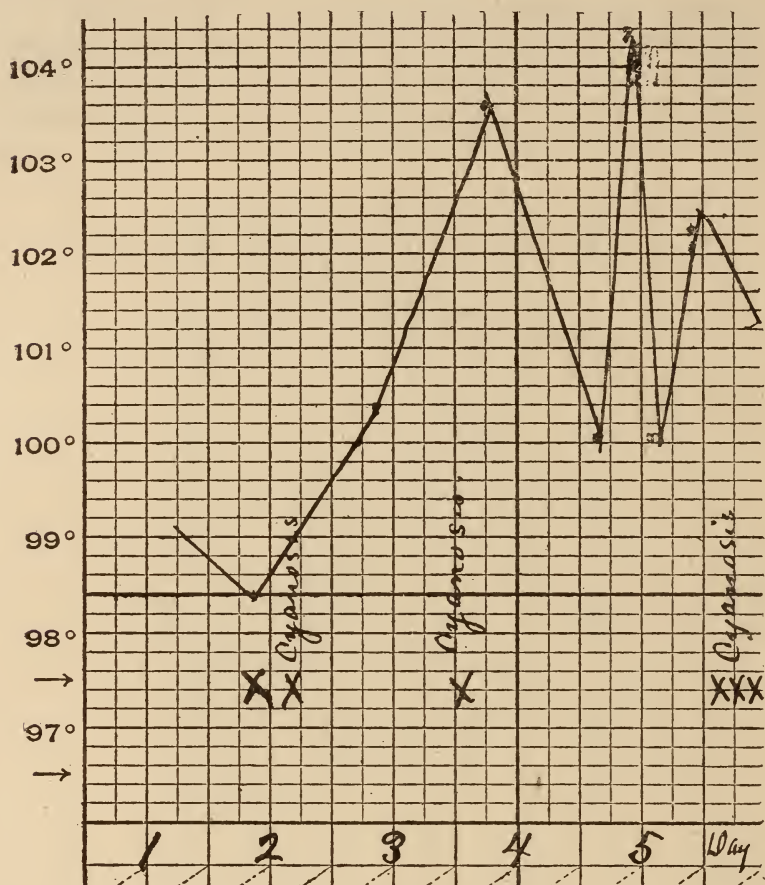


CHART 18.

CASE 43.—Deaderick, gestation 24 weeks, weight 825 grams. Admitted with a rectal temperature of  $93.4^{\circ}$ . Placed in incubator at  $94$  to  $96^{\circ}$ . Lived 18 hours. Rectal temperature never exceeded  $95.4^{\circ}$ . Had three attacks of cyanosis.

CASE 48.—W. K., gestation 24 weeks, weight 1100 grams. Admitted with a temperature of  $100^{\circ}$ . Incubator temperature  $90^{\circ}$ . Rectal temperature dropped to  $96^{\circ}$  in nine hours, but rose to  $99^{\circ}$  when the incubator was  $92^{\circ}$ ; again dropped to

93° (incubator 90°), yet had no attack of cyanosis until immediately before death, third day, with a rectal temperature of 96° (incubator 93°).



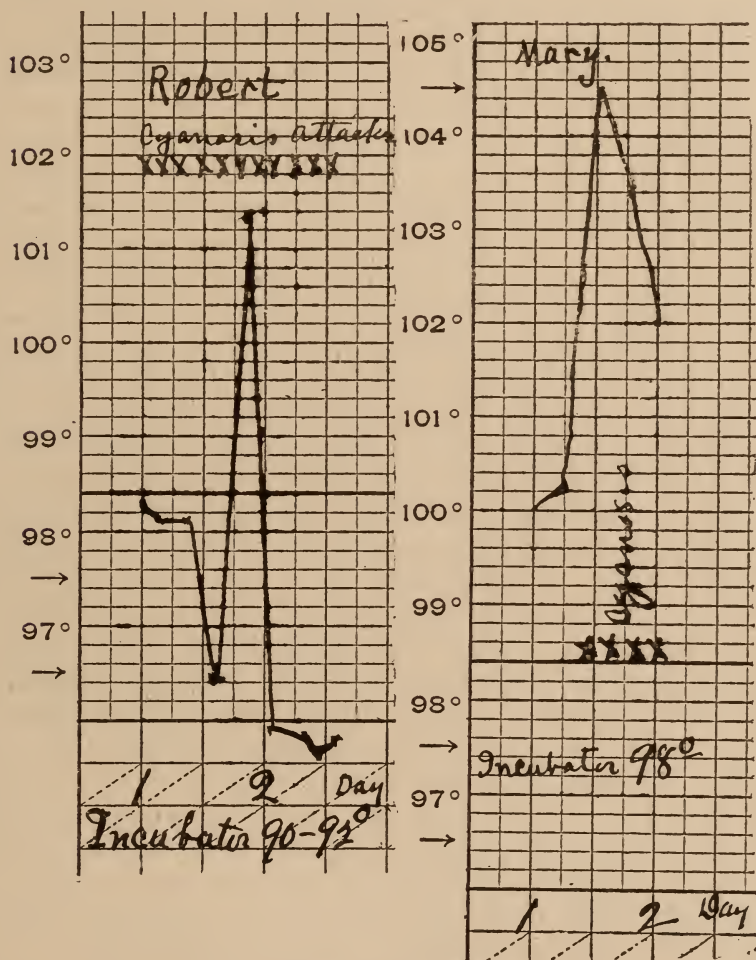
GEORGE.

CHART 19.

CASE 51.—C. K., gestation 28 weeks, weight 909 grams. Admitted with a rectal temperature of 95°. Placed in incubator at 93°. Rectal temperature the first day was between 94 and 96.4°. Third day became cyanotic with a rectal temperature of 97°.

It will be seen, therefore, that subnormal temperatures by no means lead to repeated attacks of cyanosis. Altogether I can not consider a rectal temperature of 96° very dangerous. A temperature even below this does not mean an immediate attack of apnea.

The respiratory movements, however feebly they seem, must be relatively vigorous when there is much atelectasis, and to supply this energy, food is necessary. Budin is undoubtedly correct in assigning an inadequate food supply as a principal cause of cyanosis.



CHARTS 20 and 21.

The infants, after a few hours or days, die from exhaustion, that is, an insufficient fuel has reached the tissues and the respiratory muscles and nerve centers give way first. In seven cases analyzed from the First and Second Series, that is, infants weighing less than 1200 grams, the food during the first forty-eight hours had an energy quotient of less than 20

calories, and even part of this was rejected by the stomach. To prevent cyanosis, then, the most careful attention should be given to the food.

There is, however, one other danger, and that is over-feeding. Too much food inevitably leads to indigestion and this to cyanosis. Thus, in the baby Alice (Case 36, First Series), weight 1364 grams, the energy quotient on the second day was 150 calories with indigestion and repeated attacks of cyanosis resulting. Again, in that of Doris (Case 38) the food quantity represented by an energy quotient of 140 calories on the first day resulted in death in two days, with the temperature practically normal. Again, Henry (Case 42), on the fourteenth day, with an energy quotient of 120 calories, but showing marked dyspeptic symptoms had several attacks of cyanosis. With these paroxysms the rectal temperature fell.

Cyanosis is also a symptom of inanition fever, or more properly, a disturbance caused by an insufficient supply of water. In the infants Pearl, Margaret, etc. (Cases 53-56), in addition to diluting the milk, rectal injections of a physiologic salt solution were resorted to in order to supply the necessary water. As mentioned previously, the rapid evaporation in such superheated air (88-94°) must always be considered, and careful attention to the rules laid down for the administration of water will often prevent cyanosis.

While food is absolutely necessary to prevent cyanosis, it can not be denied that the act of feeding in infants weighing less than 1200 grams is one of the principal causes of cyanosis. Paradoxical as it may seem, feeding is dangerous to these infants. Most of the attacks of cyanosis arise during or immediately after feeding. In the first place, the very act of deglutition in certain infants will in some way stop the respirations. I have noticed this particularly even before this experience. Then, again, a few drops of milk may lodge in the mouth and incite no deglutition but stop the breathing.

The milk may enter the larynx during deglutition or from vomiting afterward. If the head of the infant is kept down, as is often done to increase the blood supply in the brain, and the infant is fed, the milk may run into the nasopharynx and occlude the respiratory tube, resulting in cyanosis.

During vomiting, also, the food often regurgitates through the nose and fatal cyanosis may follow. Vomiting is very dangerous in these feeble infants. I may better illustrate the



difficulties and dangers of feeding by reciting an experience:

Robert, weight 1000 grams, gestation 26 weeks, arrived with a rectal temperature of  $98.8^{\circ}$ . While being dressed for the incubator his first cyanotic attack appeared, which was relieved by oxygen inhalations and artificial respiration. In spite of his temperature being near normal constantly, and even above normal, with nearly every feeding cyanosis would become manifest. For the first nine hours nothing was fed except a few drams of 3 per cent sugar solution. This feeding was certainly inadequate. It is necessary to begin feeding as soon as possible. In the following twenty-four hours food representing an energy quotient of 24 calories was administered but much of this was not retained.

After twelve hours' trial of feeding with a dropper, gavage was resorted to, with no change as to the number of attacks of cyanosis. Vomiting was frequent after gavage, many times the milk was regurgitated through the nose. Altogether he was a promising baby and yet in spite of most careful work for two days, the cyanotic attacks did not diminish (Chart 20).

In this little patient, the fact was demonstrated that even with the best of care, infants of not more than 26 or 28 weeks' gestation and weighing less than 1200 grams, life will become extinct.

Finally, fatal attacks of cyanosis, with or without a rise of temperature, occurring after the second day, indicates a local or general infection. This may occur in any premature infants (Chart 16). The history of one case will suffice:

CASE 45.—E. H., male, gestation 7 months, weight 1930 grams. Admitted, after a ride of seven miles over rough roads, in fair condition. He had two attacks of cyanosis on the way. Rectal temperature, on admission,  $102.6^{\circ}$ . Placed in the incubator at a temperature of  $88^{\circ}$ . Rectal temperature the first day 98 to  $100^{\circ}$ , second day 99 to  $101.2^{\circ}$ . On the afternoon of the third day the temperature suddenly rose to  $102.8^{\circ}$ . Small cutaneous hemorrhages appeared in various parts of the body. Diagnosis: Hemorrhagic disease caused by some infection.

Food supply, mother's milk in quantities of 4 cc. every hour, increased to 6 and 8 cc. The alimentation gave the following energy quotient: First day, 30 calories; second day, 35 calories; third day, 40 calories. Additional water was given by the rectum after the second day. A slight attack of

cyanosis occurred on the evening of the second day, with a temperature of  $100^{\circ}$ . Twice on the following morning the infant became blue, with a rectal temperature of  $100.2^{\circ}$ . In the morning of the third day the rectal temperature rose to  $102.8^{\circ}$ , and frequent attacks of cyanosis ended fatally.

Many additional cases could be cited from the First Series, but this will illustrate the statement that fatal cyanosis occurs on account of an infection.

The treatment of cyanosis is to ascertain the cause and remove it. For the attacks, artificial respiration takes first place. During feeding the nurse must watch the breathing and if the slightest cyanosis appears, must stop the feeding and restore the breathing. Pinching the baby often restores this function. Tapping on the head with the finger will remind the nervous system to act. When these methods are insufficient, artificial respiration, to initiate the respiratory function, must be employed. Before doing this one must be sure that the upper respiratory tube is clear of milk or mucus. The baby is rolled on its face and the head lowered. Milk will then flow out of the larynx or pharynx. It can then be wiped away.

As to the method of artificial respiration, the exigencies of the case must decide. Undoubtedly, Schultze's method is the most effective, but has the great objection that the swinging rapidly cools the infant. If the rectal temperature is high, this method can be used. When the temperature is subnormal other methods should be chosen. Marshall Hall's method is applicable in the incubator. Silvester's method will more generally be found serviceable and can be used in the incubator or bath. The infant should at once be placed in a warm bath (temperature  $100^{\circ}\text{F.}$ ) if the rectal temperature is below  $36^{\circ}\text{C.}$

It is well to have several methods of artificial respiration in mind, as different conditions necessitate the choice of different procedures. The methods of Pacini, Bain or Behm can be used in the incubator. Prochownick's method (suspension by the feet and compression of the chest) can be used advantageously if the cessation of the respiration is caused by milk or mucus in the upper respiratory tube. The method of Harvie does not necessitate exposure so much as Schultze's procedure.

Simple suspension alone will often initiate respiration. The method of Laborde was used in one case unsuccessfully.

One or two attempts at blowing air into the trachea were unsuccessful. It was our custom in many cases to place one drop of a 1/1000 solution of nitroglycerin on the tongue of these babies. Often it seems very helpful. Oxygen inhalations were constantly used. I am not very sure as to its value. Oxygen can not initiate the respiratory function. When the breathing has started, oxygen hastens the oxygenation of the blood and dispels cyanosis.

Altogether the problem of cyanosis is one of the principal tasks awaiting solution. With skill and great care its dangers may be obviated, but in infants weighing less than 1200 grams, it is only rarely that cyanosis will not appear.

*(To be Continued.)*

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## The Ruediger Blood Test for Typhoid.

By GEORGE C. CRANDALL, B.S., M.D.,

ST. LOUIS, MO.

Professor of Internal Medicine, Medical Department, St. Louis University.

**D**URING the past few years the Widal agglutination test for typhoid fever has proved itself a most valuable aid in differentiating continued fevers, and recently there has appeared a modification of this test which must certainly add greatly to its usefulness.

The new test consists of a macroscopic agglutinative reaction occurring in a bouillon culture of typhoid bacilli and blood serum. This test obviates the necessity of a living typhoid culture, and a microscopic examination, making it as easy of application by any physician as a test for albumin, which in appearance it resembles very much.

Ficher,<sup>1</sup> of Berlin, reports very favorably upon its use and considers it thoroughly reliable, being applicable to dried as well as fresh blood.

Radzikowski,<sup>2</sup> of Vienna, reports seventeen cases in which he had tested this method, using fresh and dry blood of typical typhoid cases which gave the Widal reaction and found it positive in all. He concludes that it is simpler than the Widal,

is as reliable, requires shorter time and enables every physician to make his own typhoid test.

Ruediger,<sup>3</sup> of Chicago, reports thirty-four cases and as his method of applying the test is one of the simplest, I will give it somewhat in detail :

Inoculate 500 cc. bouillon with *B. typhoid*, incubate at 36°C. for twenty-four hours, and add to this 1 per cent formalin. Make a 1/500 formalin solution. These are the two stock solutions. Put four drops of blood in 2 cc. of the formalin solution which makes approximately a 1/10 per cent solution of the blood, likewise lakes the blood. Add 10 cc. of blood formalin mixture to 4 cc. of the bouillon culture which make approximately 1/50 dilution.

In a few minutes to an hour there appears a coagulum suspended throughout the solution which gradually settles, resembling very closely the albumin test of urine when small amounts of albumin are present. This contrasts closely with the control solution which shows a fine cloudiness characteristic of the bouillon culture.

Ruediger has found that the reaction will appear in 1/1000 or 1/2000 solutions after three to ten hours. He considers it fully as reliable as the Widal test, also found it applicable to dried as well as fresh blood, obtaining a characteristic reaction with dried blood one year old. His thirty-four cases which showed the reaction were thirty typical typhoid, one doubtful, two paratyphoid and one tuberculosis.

I have used the test on about fifty cases of typhoid which gave the Widal reaction, and find it equally accurate.

All observations, so far as I have gathered from the literature, agree that it is fully as reliable as the Widal test and it has the great advantage of placing in the hands of every physician a very simple means of testing the blood of his own typhoid cases and it must make more accurate the diagnosis of the great number of continued fevers.

Further than this, there is the possibility of the application of this principle giving similar macroscopic evidences of other infectious diseases. Investigators are already experimenting along this line and we may hope for fruitful results.

#### REFERENCES.

<sup>1</sup>Ficker.—Berliner Klin. Woch., No. 45, 1903.

<sup>2</sup>Radzikowski —Weiner Klin. Woch., No. 10, 1904.

<sup>3</sup>Ruediger.—Jour. of Infec. Dis., Vol. 1, page 262, 1904.



## Epithelioma of the Face in a Young Child.

By M. J. LIPPE, M. D.,

ST. LOUIS, MO.

THE history of this case is as follows: Beatrice B., a girl, aged 4 years, has never been ill, excepting the affection for which she was operated on, which constitutes the basis of this report, and is a normal child in every way.

Father and mother living and healthy; has a brother and sister, both healthy; no history of malignant trouble in the family.

About six months ago she developed three small flat warts, two below the inner canthus of the right eye and the third along the side of the nose, above the nasolabial fold. After they had been noticed for three months, the lower one (the one on the side of the nose) began to grow; the father of the child tried to pinch it off a number of times, but it grew in spite of his efforts.

I saw the child on January 16, 1905, and at this time observed the following: Two small warts, as before described, below the lower canthus of the eye; above the nasolabial fold was a warty-looking growth about one-third of an inch in diameter, raised above the surrounding skin. The color of the base of this growth was slightly red—dark-red, but not inflammatory looking; the top of the growth was grayish looking, like verrucous tissue, with a tendency to breaking down in the center. A lymph node at the angle of the jaw was enlarged somewhat.

A similar condition in an old person would have impelled one to make a positive clinical diagnosis of epithelioma, growing on a wart, but occurring in a child of such tender years one would hesitate to make such a diagnosis unsupported by a microscopical examination.

I told the parents that it was a nasty looking thing and that it was possibly malignant. They consented to an excision which I advised.

The tumor was removed three days later, and sent to Dr.

Carl Fisch, who reported a typical epithelioma. This is the report in detail.

*Dear Doctor.*—The small tumor (about 2.5 mm. in diameter in its alcohol hardened condition) removed by you from the right nasolabial fold of a child, and submitted to me, was found to be a typical epithelioma or a cancrroid. Its center had through cornification led to a defect in which granular detritus and inflammatory exudate formed a plug. The peripheral zone of the tumor had grown under the adjoining epidermis, compressing and obliterating it; it was preceded by an area of inflammatory changes in the corium, leading to an elevation above the normal of the epithelium. The interpapillary processes of the epithelium in this zone were seen to be wedged out in a direction away from the tumor mass. In its central portion the tumor had penetrated beyond the elastic layer of the subcutaneous tissue, sending into the corium smaller and larger processes. The tumor is, therefore, an epithelioma, that had its origin from the cutaneous epithelium. It was not in direct continuity with the latter, but everywhere well-defined from it.

Yours truly,

CARL FISCH, M.D.

Keen has called attention to the liability of warts, taking malignant changes, in a report of twenty-five cases in the *Journal of the American Medical Association*, July, 1904. The same thing has been observed by many before this.

Epithelioma occurring at such a tender age is apt to be overlooked, although its early recognition and extirpation is the only hope of preventing a disastrous outcome.

Whether or not the other two warts are small carcinomata, I am at present unable to say; the theory that all epithelial growths are congenital and merely call for the conditions (irritations, etc.) favorable for their activity in order to become malignant is attractive, and this case rather pleads for this theory.

On the strength of the microscopic findings in the tumor removed, I have offered to remove the other two warts and the lymph-node at the angle of the jaw, both for the safety of the child and for a scientific microscopic investigation, and hope to be able to report the result of this study to you later on.

That malignant growths occur at a very early age can be

conjectured from the following references. I have not had time to look up as many as I would have liked.

Ashby and Wright quote Cullingworth's case of columnar epithelioma found in the stomach of an infant five weeks old.

Jacobi recorded a case of congenital sarcoma in a fetus born dead.

In April, 1900, Osler and McRae reported six cases of cancer of the stomach in children under ten years. Four of these were in infants and were probably congenital.

Selberg reports a case of epithelioma of the skin in an infant of six months, in whom it was very likely congenital.—*Virchow's Archiv.*, Vol. CCXLV, Page 76.

Leibert reports a case of cancrioid in a child of eight and a half years, in whom it was almost congenital.—*British Medical Journal*, October 15, 1898.

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## A Review of Methylene Blue Eosin Blood Stain.

### A Report of Some Modifications in Method of Preparation.

BY GEORGE C. CRANDALL, B.S., M.D.,

ST. LOUIS, MO.

Professor of Internal Medicine, Medical Department, St. Louis University,

ONE of the most important clinical observations we make is the condition of the blood which, on account of the delicate technic required, is often neglected or made in such a cursory manner as to afford little or no valuable information. The microscopic examination of fresh blood is of clinical value in ascertaining the number of red and white cells; also, in part, the general condition of the red cells, and it *may* show the presence of blood parasites as malarial organisms, filaria, etc.; but, as a rule, the most accurate information requires a well-made, well-stained blood film, showing the histologic and pathologic elements so clearly defined that they

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*Read before the Medical Society of City Hospital Alumni,*

*December 15, 1904.*

may be readily recognized. This can be accomplished only by the use of a good differential stain, and that which is attracting most attention for general blood work is some combination of methylene blue and eosin, which has undergone various methods of preparation during the past decade.

Romanowsky used an alkaline methylene blue solution, which was allowed to stand until mould formed upon the surface, oxidizing some of the methylene blue into methylene azure. Of the methods preceding and succeeding Romanowsky's, those using any kind of oxidized alkaline methylene blue obtained some chromatic staining, the others were deficient in this regard.

A few of the prepared staining solutions which I secured from different sources gave good staining reaction, but other samples obtained from the same sources gave quite indifferent results, and I have endeavored to ascertain the reason for such variations.

After numerous preparations of the stain during the past two years, I have found the following method uniformly satisfactory :

Prepare the fresh solution of the primary stains.

Methylene blue solution—

Sodium bicarbonate thoroughly dissolved in distilled water to make a one-half of 1 per cent solution, to which add sufficient methylene blue to make 1 per cent of the blue. Steam in Arnold sterilizer for one hour, then cool.

Eosin solution—

Make one-tenth of 1 per cent solution of yellowish aqueous eosin in distilled water.

Add the eosine solution to the methylene blue solution, stirring the mixture constantly, until about five parts of the eosin have been added to the blue; then begin testing the staining reaction of the mixture, in a sense titrating the stain and controlling the end reaction by the actual application of the stain to freshly-made blood films. This test is quite easily made by filtering ten drops of the mixture through a small piece of filter paper, dry the residue on the paper and put it in a small test tube with about ten drops of pure methyl alcohol, agitate thoroughly to dissolve stain on filter, and with this stain a freshly-made blood film. This will give an index of the staining reaction, and more of the blue or eosin solution may be added until the test gives the desired results. A light pink



color of the red cells in the thin areas of the film and a bluish color of the thick areas is most satisfactory, since with this color the other blood elements stain clearly; if the red cells are an intense pink the blue is over neutralized and the white cells and organisms do not stain well; if the red cells stain too blue there is not the contrast necessary to show clear definition of the other elements.

When the mixture is finished it should be filtered through filter paper and thoroughly air-dried, or dried over the flame at a distance easily borne by the hand. Make a saturated solution of the powder, about three-tenths of 1 per cent, in C.P. methyl alcohol, filter and add to it one-quarter more of the alcohol; or make a one-fourth of 1 per cent solution of the residue in C.P. methyl alcohol and filter. Preserve in tightly-corked bottles in the dark. Keep the bottles quiet when using, avoiding shaking, so as not to distribute through the solution any precipitate that may form.

In applying the stain filter ten drops directly upon the unfixed film or use a pipette freshly rinsed in methyl alcohol, take ten drops of the stain from the center of the solution, put on the unfixed film; leave one minute, then add to the stain on the film one or two times as much distilled water as stain and leave two or three minutes more; wash quickly three to five seconds under a strong stream of distilled water; dry promptly with blotter; then air-dry thoroughly or hold over flame at hand distance; mount in *pure* balsam. The entire procedure requires less than five minutes.

The film will vary somewhat in thickness, the color of the thin areas being light pink and that of the thick areas bluish.

Sligh variations in the amount of water added to the stain on the film, the length of time it remains, and the length of time it is washed may vary the tint somewhat, but with ordinary care uniform results will be obtained.

If the stain is kept quiet, slides thoroughly cleaned, films well spread, the stain not allowed to evaporate on any portion of the film before the water is added and a strong stream used in washing off stain, there will be little or no difficulty in the precipitate, which forms while staining, adhering to the film.

I have found Gruebler's brands of stain satisfactory, viz., "Med. Methylene Blue," "Bx," "Koch" and "Ehrlich," and "Yellowish Aqueous Eosin B.A." I have secured good results

also with Merck's "Med. Methylene Blue" and "Yellowish Aqueous Eosin."

It is important to know that the methyl alcohol<sup>1</sup> is pure, or at least neutral in reaction, since some of the C.P. methyl alcohol contains a trace of acid which may be sufficient to interfere with the blue. The alcohol should be C.P., and if found to be faintly acid, as can be determined with litmus paper, it should be neutralized with sodium bicarbonate solution before dissolving the stain, otherwise the eosin will be too intense, and the blue very pale. If the alcohol used has not been corrected when necessary, a little of the sodium bicarbonate solution may be added to the finished stain which will intensify the blue.

It is also essential that pure distilled water be used for making the stain, likewise for diluting the stain on the film and in washing the stain off the film.

In conclusion, the chief advantages of such a combined methylene blue eosin stain are the following:

The rapidity of application; the power to stain cytoplasm, chromatin and granules; the good differentiation of leucocytes, the clear staining of pathologic elements, and the durability of both the stain and the stained preparations.

As a result of numerous tests and observations, I believe that the reason for the variation in the staining power of the different samples of the stain made by the various methods is that the primary solutions have been combined in too definite quantities; not adapting these solutions, which may vary somewhat, to each other; also that not sufficient attention has been given to the purity of the methyl alcohol and the distilled water.

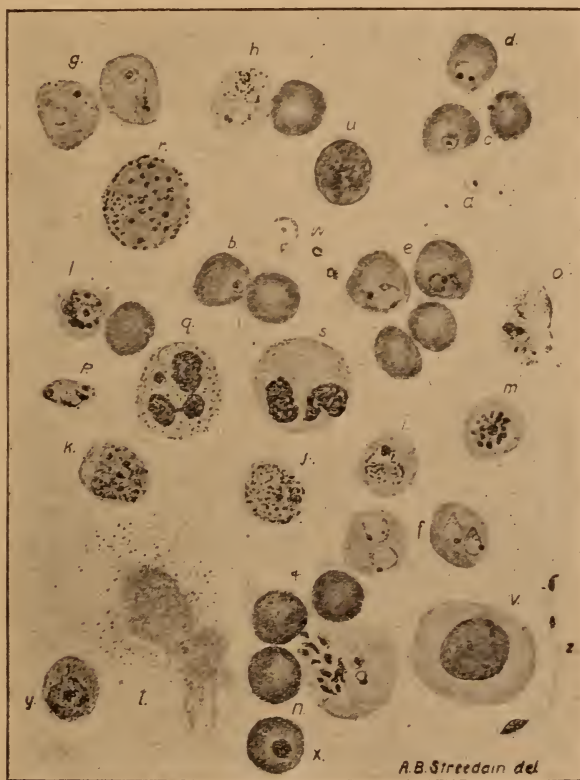
I have obtained uniform results in making the stain by some of the other methods when I have tritrated the mixture and used *pure* distilled water and *pure* alcohol.

I have used many of the blood stains for different pathologic conditions, but during the past two years I have relied upon the oxidized methylene blue eosin exclusively, and can fully corroborate Cabot's opinion as expressed in the new edition of his work on the blood, viz, that it is the best for all purposes for which one uses a blood stain at all.

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<sup>1</sup>Kahlbaum, of Berlin, supplies a methyl alcohol which is said to be free from acid, and I have found it satisfactory without any correction. I have obtained it from Eimer & Amend, New York, and the Heil Chemical Co., St. Louis.

I would especially emphasize the following points concerning it: Use some of the reliable crude stains for making the primary solutions, test the staining power of the mixture well before filtering and drying, be sure that the C.P. methyl alcohol is neutral, and use pure distilled water.



#### DESCRIPTION OF THE PLATE.

The plate is a reproduction of a water color composite picture of the blood of a patient suffering from double tertian malaria.

The blood was taken during a paroxysm and all the figures except o, p, r, x, y and z represent a few of the characteristic organisms and cells found under a  $\frac{3}{4}$ -inch circle cover glass; the others were from films taken from the same patient at the same time, the organisms being abundant in various stages of development. The blood was stained with the titrated eosin methylene blue stain described, and the figures were outlined with a camera lucida, Richert microscope. They represent a magnification of about 1400 X.

a.—Young organisms free in the blood, the cytoplasm, blue; the chromatin or nucleus, red.

b, c, d and e.—Early stages of development in red the blood cells, so-called ring forms.

f, g, h and i.—Later stages of development, distinct enlargement of the invaded cells which stain less intensely, beginning of granular degeneration of the red cells, also appearance of the pigment of the organisms.

j.—Adult organism, pigment abundant and scattered, nucleus beginning to divide.

k.—Adult organism, pigment scattered, nucleus divided and distributed through the organism.

l.—Organism undergoing segmentation, nuclei in the segments, pigment collected in the lower part of the organism.

m.—Rosette appearance of the segmenting organism, pigment collected in the center.

n.—Organism showing segmentation complete, young organisms and pigment being liberated from the ruptured red cell.

o.—Crushed red cell containing an organism the granules of the degenerating red cell scattered.

p.—Adult organism free in the blood.

y.—Intracellular flagellum.

z.—Extracellular flagellum.

d.—Young organism with two nuclei.

f.—Red cells invaded by two organisms each.

q.—Neutrophilic leukocytes, intensely stained nuclei, neutrophilic granulation of cytoplasm granules small and irregular, a mass of malarial pigment in the cell to the left of the nucleus.

r.—Mast cell, feebly stained nucleus, basophilic granulation of cytoplasm, granules large and deeply stained.

s.—Eosinophile, intensely stained nuclei, eosinophilic granulation of cytoplasm, granules spherical.

t.—Crushed neutrophilic leukocyte, scattered chromatin and granules.

u.—Lymphocyte, intensely stained nucleus, light-blue nongranular cytoplasm.

v.—Large mononuclear cell, moderately stained nucleus, neutral, somewhat granular appearance of cytoplasm.

w.—Blood plate, indefinite trabecular structure, various sizes and shapes.

x.—Blood plates lying upon a red cell.

aa.—Red cells showing blue granulations incident to anemia.

Several normal red cells are shown unlettered.

[4287 OLVE ST.]

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### The St. Louis Neurological Society.

A number of physicians met February 27, 1905, and by a vote decided to inaugurate a neurological society in St. Louis, entitled The St. Louis Neurological Society. Those present were Drs. M. A. Bliss, Given Campbell, Charles G. Chaddock, Frank R. Fry, W. W. Graves, H. W. Herman, M. W. Hoge and Sidney I. Schwab.

Dr. Fry was chosen president and Dr. Campbell secretary.



## SPECIAL ARTICLES.

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### Certified Milk.

#### The Rules and Regulations Adopted by the St. Louis Pure Milk Commission for the Production, Transportation and Distribution of Pure Milk.

ALL physicians will be interested in the strong movement now on foot to procure pure milk for infants and invalids. The trend of modern milk sanitation is not so much to provide a milk of uniform composition, but to get very *clean* and *fresh* milk, that is milk containing no pathogenic micro-organisms and a minimum number of saprophytes.

The Bureau of Animal Industry of the Agricultural Department has done an enormous amount of investigation on the methods of producing pure milk, and rules for its production are now known to be effective and entirely practicable. In several cities of the United States, Milk Commissions composed mostly of members of the medical profession have drawn up requirements and have watched their fulfillment. Reports from Newark, New York, Philadelphia, Milwaukee, etc., where Certified Milk has been produced under the regulations of the Milk Commissions indicate that these methods are a most important advance in the sanitation of foods. Wherever the physicians have insisted on these methods, success has been achieved. The latest report from the Milwaukee Milk Commission shows that a milk has been produced which gave the surprising average of only 528 bacteria to the cc. during past year. If results like this could be obtained everywhere, the question of infant feeding would be almost solved.

#### Circular of Information Concerning the Requirements of the St. Louis Pure Milk Commission for Certified Milk.

The following requirements for Certified Milk were drawn up by the Committee on Certification of the St. Louis Pure Milk Commission,

a society and corporation which was organized for the purpose of reducing the infant mortality in St. Louis. The Commission offers those dairymen complying with these requirements the use of caps on their milk bottles bearing the words "Certified by the St. Louis Pure Milk Commission." It also publishes in the daily papers a monthly list of the dealers to whose milk it certifies together with a condensed statement of the requirements which such milk must meet. Furthermore, it allows those who avail themselves of this opportunity to have their milk certified, to distribute the following certificate with each bottle sold:

St. Louis Pure Milk Commission.—Certificate.

Date.... Milk and cream from the dairy of.... and the dairy itself have been recently examined by the experts of the Commission and found to be up to the required standards of excellence. Another examination is to be made within a month and, if satisfactory, new labels for the bottles will be issued dated....

[Notice the date.] St. Louis Pure Milk Commission.

It also allows producers of "Certified Milk" to distribute copies of our requirements, as advertising matter.

Before drawing up these requirements the Committee on Certification made a careful study of the requirements of all similar commissions in other cities. It corresponded with these commissions with regard to the feasibility and success of such requirements and asked for recommendations in the light of their past experience. It delegated one of its members to visit certified dairies in Chicago and Eastern cities and confer with dairymen who are producing "Certified Milk" under the supervision of milk commissions there.

The following contract contains no requirements which have not been tried and found practicable.

The Committee on Certification of the St. Louis Pure Milk Commission is composed of members of the Board of Directors of the St. Louis Pure Milk Commission and of physicians, (many of them specialists on the treatment of diseases of infants) who were delegated to represent various medical societies of St. Louis.

The personelle of the Committee on Certification is as follows:

Drs. George M. Tuttle, E. W. Saunders, Robert Luedeking, R. C. Atkinson, A. R. Kieffer, H. L. Scherck, Jesse Meyer, W. S. Barker, J. C. Falk, John Zahorsky, Albert Merrell, W. W. Gilbert, and Messrs. Walter Bernays and Wm. Chauvenet.

**Circular Letter to Dairymen.**

Dear Sir.—The St. Louis Pure Milk Commission, a corporation which has for its object the reduction of the death-rate in children, desires in pursuance of this aim, to encourage the production of the highest grade of milk. To this end it has drawn up a set of rules for

the operation of dairies, and standards of excellence for milk and cream. These requirements have grown out of the experience of dairymen who have produced this high grade of milk under the supervision of commissions similar to this one in other cities. They contain only necessary and tried regulations, which have been shown to be practicable. They are set forth in the inclosed circular.

If you do not wish to avail yourself of this opportunity to have your dairy and its products examined, the Commission does nothing prejudicial to your interests. The experience of dairymen under milk commissions in other cities has shown, however, that it is to the advantage of the better class of milk producers to have the excellence of their milk certified to by a commission composed of citizens not financially interested in any dairy, but simply anxious to improve the health of children and persons in delicate condition who depend on good milk for their welfare.

In order to defray the expenses which the Commission will incur, (such as cost of printing certificates, cost of making examinations and inspections, cost of inserting notices in daily and medical papers) we will charge the producer 1 per cent of the gross receipts for the milk and cream to which we certify. This will amount to about 1 mill per quart of milk and need not appreciably affect the cost of this milk to the producer or consumer.

Any excess over expenses which the Commission may receive in this way will be used in dispensing milk to poor infants.

It is obvious that these requirements can only be fulfilled by farmers and dairymen who have their own dairies so that everything shall be under their direct control. We will, however, permit the dairy-farmer to distribute his milk to customers through an agent in the city provided this agent makes a contract with the Commission which will ensure his furnishing only "Certified Milk" to customers who order such milk.

This agent's contract shall also embody requirements for the manner of receiving, storing and delivering to consumers "Certified Milk" so as to safeguard the continued purity and cleanliness, and low content of micro organisms of such milk. If such agent sells ordinary market milk also, he shall give bond to the amount of five hundred dollars which he shall agree to forfeit if it is proven to the satisfaction of a quorum of the Board Directors of the St. Louis Pure Milk Commission that he has in any sale substituted ordinary milk for "Certified Milk." His contract as agent for "Certified Milk" shall also become void if he violates in any way the City Ordinances regulating the sale of milk and cream either in handling certified or ordinary milk.

We know that there is a desire among medical men and the intelligent community for an absolutely trustworthy milk, which will create a demand for milk thus certified at a price which will make it profitable for you to produce such milk.

We urge you to equip yourself to produce "Certified Milk."

Milk produced under our supervision will be known as "Certified Milk." The term "Certified Milk" has been copyrighted by Dr. Henry L. Coit, of Newark, who is the originator of the certification idea. We have acquired the sole right to use this term "Certified Milk" for this city. Any infringements of our rights will be vigorously prosecuted and offenders brought to justice.

[Signed]

St. Louis Pure Milk Commission.

THE FOLLOWING AGREEMENT made this .... of ....., Nineteen Hundred and Five, between the St. Louis Pure Milk Commission, a corporation organized under the laws of the State of Missouri, party of the First Part and ....., of the....., party of the Second Part :

Witnesseth As Follows :—That the party of the second part doth hereby bind himself to a fulfillment of the provisions of this contract for and in consideration of the benefits hereinafter named and granted by the party of the first part.

1. The party of the second part doth agree to conduct such parts of his dairy as may be hereinafter named, collect and handle its products in conformity with the requirements below set forth, for and in consideration of the promised indorsement of the parties of the first part, as hereinafter indicated. The milk thus produced shall be known as "Certified Milk" and shall be designed especially for clinical purposes. When at any time the demand for "Certified Milk" shall be greater than the supply, and it is prescribed by a physician, either for infant feeding or the diet of the sick, it is hereby agreed that such patient shall be the preferred purchaser.

2. The party of the second part doth hereby agree that all milk sold by him and which shall be known as "Certified Milk," shall comply with the requirements of the party of the first part.

3. The Commission shall select a bacteriologist, a chemist and veterinary inspectors. The bacteriologist shall procure a specimen of milk from the dairy, or preferably from delivery wagons, at intervals to be determined by the Commission, but in no case at a longer interval than one month. The exact time of procuring shall be without previous notice to the dairy. He shall test this milk for the number and nature of micro-organisms present in it, to the extent which the needs of safe milk demand. He shall also make a microscopic examination of the milk for indications of diseased udders. Milk free from injurious micro organisms and containing less than 30,000 micro organisms of any kind, when delivered to the consumer, shall be considered to be up to the required biological standard of purity.

4. The chemist shall in similar manner, procure and examine the milk for the percentage of proteid, fat, sugar, mineral matter and water present, determine its acidity and the amount of insoluble foreign mat-



ter, and its specific gravity. He shall further examine it for chemicals added as preservatives or for any other purpose. Standard milk shall range from 1030 to 1034 (water 1000) in specific gravity, be amphoteric, or very faintly acid in reaction, contain from 3 to 4 per cent proteid, from 4 to 5 per cent sugar, from 3.25 to 4.5 per cent fat, and shall be free from all contaminating substances or matter, and from all additions of chemical compounds or coloring matters, and the sum of the non fatty constituents shall be not less than 86 per cent. Milk shall not have been subjected to heat before examination has been made, nor at any time.

5. The veterinary inspector by himself, or in consultation with any or all of the Commission's experts or members of the Committee on Certification of the Commission, shall, at intervals equal to those of the bacteriologist and chemist, and without previous warning to the dairyman inspect the cleanliness of the dairy in general, the care and cleanliness observed in milking, the care of the various utensils employed, the nature and quality of the food used, and all other matters of hygienic nature bearing upon the health of the cows and the cleanliness of the milk, including also, as far as possible, the inquiry into the health of the employees on the dairy farm. He shall also see that the cows are free from tuberculosis or other disease, and no animal shall be admitted to the herd until after a quarantine period of two weeks, and until after being subjected to the tuberculin test, and until approved by the Commission's veterinary experts.

6. In case an examination shows the dairy and its products not in compliance with the requirements and standards of excellence set forth in this contract, the dairy may have re-examination made within a week or within a short time, at the discretion of the Commission.

7. It is agreed that the requirements and standards with which the party of the second part does hereby agree to comply and attain, in connection with the operation of his dairy or dairies, from which his milk supply shall be obtained, shall be as follows:

**LOCATION OF DAIRY.**—Buildings should be placed on sufficiently high ground to ensure good drainage, and where plenty of pure water is available. If possible roads to pasture should be covered with a hard surface of cinders or gravel. Pastures must contain no surface water. No animals other than cows shall be kept within forty yards of the dairy buildings.

**WATER SUPPLY.**—The water supply must be pure, abundant and amply protected from danger of pollution.

**BARN-YARD.**—The barn-yard must be made to slope away from the buildings so that surface water will drain off rapidly. It shall be covered with a layer of concrete or other hard material approved by the Commission. No manure or rubbish shall be allowed to accumulate in the barn-yard.

**STABLE.**—The stable must have an efficient system of drainage and ventilation. It must be well lighted. Sufficient artificial light must be provided to do the work properly during dark hours. The roof must not leak, and the sides must be wind tight. Doors and windows must close tightly, and be fitted with screens in summer. Floor, gutter and manger must be of non-absorbent material, preferably cement. The platform on which the cows stand, may be covered with creosoted wood, if cement be deemed too hard. Floors and gutters must have sufficient slope to drain well. If there is a loft over the milking-stable, said stable must have a dust proof ceiling. Running water and wash basins must be provided in the barn or an adjacent room. The length of the stalls must be adjustable, or the platform be made to taper from one end of the barn to the other, so that cows of different size may be lined up so that their manure will fall directly into the gutter, and so that they will not habitually stand with their feet in the manure gutter. Some effective means of keeping the cows lined up on the gutter must be adopted! The entire floor must be thoroughly scrubbed with broom and water daily.

The walls, ceilings and stalls must be clean and free from dust and cobwebs, and if not painted they must be whitewashed at least twice a year. Manure must be removed from the stable twice a day when the cows are kept in. The mangers must be scrubbed with lye or other approved cleanser every two weeks. They must be constructed of non-absorbent material and so designed as to have no corners where decaying particles of feed may lodge. Bedding must be kept clean and as free from dust as possible. Anything which decays rapidly must not be used as bedding. Bedding may advantageously be covered with coarse burlap fastened down. Hay must not be used for bedding.

There must be an isolation and hospital barn on the premises at least 100 yards from the main barn. New animals must be kept separate from the herd until approved by the veterinary. Every animal must be shown to be free from tuberculosis by the test of the Commission's veterinary in consultation with State veterinary before it enters the herd, and tuberculin tests shall be made at such regular intervals thereafter as to insure the continued freedom of the herd from tuberculosis. Milk from sick animals should be discarded, and such animals isolated until re-admitted by the Commission's veterinary. Pregnant cows must be removed from the milking-barn thirty to forty-five days before calving and not returned to the milking-barn until approved by the Commission's veterinary experts, and on no account sooner than the ninth milking after calving. Milk from cows in heat shall not be sold as "Certified Milk."

**FEEDING.**—Nothing in a state of fermentation or decomposition shall be fed. This shall not exclude good ensilage fed in proper quan-

tity at the proper time, *i.e.*, after milking. If ensilage is fed, the quantity fed at one time should be so regulated that the entire ration is consumed at once. If fed in the barn the remnants of ensilage left in manger or on the floor after feeding must be removed immediately.

If the privilege of feeding ensilage is abused, the Commission reserves the right to stop its use altogether.

Dry roughage must not be fed just before or during milking, because this raises dust. No food stuffs shall be kept or stored in the milking-barn.

GROOMING COWS AND PREPARATION FOR MILKING.—Each cow must be groomed with curry-comb and stiff brush daily. Hair on the udder and adjacent parts must be kept short. Before each milking, dry dirt and loose hair must be removed from the cow with a stiff brush, and places soiled with fresh manure must be washed. Grooming or any other operation which raises dust in the barn, must be begun in time to be finished at least twenty minutes before milking is commenced. After cleaning, the cows must be prevented from lying down until milked, by stretching a chain across the stall under their necks. Milking stools must be cleaned after each milking.

MILKERS AND MILKING.—Milkers must not come in contact with anyone having a communicable disease.

Just before milking, the cow's udder and flank must be moistened with a wet cloth and only the teats dried again. Milkers must be personally clean and healthy. They must have washable light colored suits and caps which shall be used during milking only, and kept clean. Milkers must wash their hands with warm water, soap and nail-brush just before milking. All milking must be done with dry hands, and the teats also must be dry. Adjacent parts must be moist to hold dust. Milking should be done quietly and in a thorough manner. Milkers must avoid handling cows more than necessary during milking. The first few streams from each teat must be discarded into a special pail. Strange persons, children under twelve, and small animals must be excluded from the barn during milking. An effective method of keeping the barn free from insects must be practiced.

If an animal yields any milk unnatural in appearance (bloody, slimy, etc.), the whole milk from that animal must be rejected. Also if an accident occurs by which dirt gets into the milk, the whole contents of that pail must be discarded. In either case, the pail must not be used again until it has been cleaned and sterilized.

The opening in the milking pail must not exceed eight inches. The Freeman or the Gurler type of pail are recommended.

Cows must always be treated with the utmost kindness.

MILK-HOUSE.—The milk-house must contain one room which is used for preparing the milk for market only. Utensils must be



washed in another room which must be equipped with a steam sterilizing chamber, large enough to contain at one time all the utensils which come in contact with the milk from the time it leaves the cow until the bottles are sealed. All utensils shall be sterilized in this chamber at not less than eight pounds pressure of steam for twenty minutes. The milk-room must also contain an efficient cooler, and arrangements for bottling. There shall be no apparatus for pasteurizing milk on the premises.

**MILK UTENSILS; CLEANING AND CARE.**—So far as possible dairy utensils shall be made of metal or glass, and shall be of simple construction so as to be easily cleaned; joints and rims of metal utensils shall be smooth and cracks entirely filled with solder.

No milk vessels shall be used which are old, rusty or dilapidated. Vessels used for carrying milk shall be used for nothing else. No milk vessels or utensils except pails shall be taken into the stable or milking-barn. All utensils shall be cleaned in a separate wash-room especially fitted for the purpose (not in dwelling-house or in milk-room). Before cleaning, milk utensils shall be rinsed with cold or luke-warm water, they shall then be washed thoroughly with hot water with the aid of some cleaning preparation (other than laundry soap or inferior washing powder), then rinsed with clean water and sterilized. Every part of an article, outer as well as inner surfaces, shall be cleaned with a brush, or be in plain view when cleaned. After cleaning, vessels shall be kept inverted, without covers, in a clean, dry, dustless, odorless atmosphere. Cleaning cloths shall be washed and sterilized daily. Sponges shall not be used for cleaning.

**PREPARING MILK FOR SHIPMENT.**—The milk must be poured over the cooler immediately after milking, and cooled to 40°F. or less within ten minutes after leaving the cow's udder. It must then be bottled at once and kept in a refrigerator at 45°F. or less, until shipped. Bottles must be closed with sterilized caps, stamped with the date of milking. During transit and until the milk is delivered at the consumer's house, the bottles must be packed in ice, in clean crates, so that the temperature is never allowed to rise above 45°F.

**CARE AND DELIVERY OF MILK AND CREAM.**—While awaiting delivery in the city, milk shall be held in a clean cold-storage room not used for domestic purposes.

Delivery wagons shall be so constructed as to protect milk from the weather, all fittings and inside parts shall be cleaned frequently; in warm weather they shall be washed daily with warm water. They must be equipped with efficient refrigerators which will keep milk below 45°F. during delivery.

The collection of empty bottles and milk tickets or checks from hospitals or houses where an infectious disease is known to exist, shall be made by other persons and vehicles than those deliv-



ering the milk. When returned to the dairy, the bottles shall be taken to a separate building and thoroughly sterilized before being carried to the dairy room, and all such collected tickets and checks shall be promptly destroyed.

All tickets, checks and labels on jars or bottles shall be new when delivered to consumers, and none shall be used a second time.

STANDARDS.—Milk certified by the Commission shall have the following composition: Fat, 3.5 to 4.5 per cent; proteid, 3 to 4 per cent; sugar, 4 to 5 per cent. It shall have a specific gravity of 1.030 to 1.034 (water 1000). It shall be free from all foreign substances and shall not have been subjected to any heating process to reduce the number of micro-organisms. It shall contain less than 30,000 micro-organisms per cubic centimeter when delivered to the consumer, be altogether free from pathogenic forms of micro-organisms and indications of diseased udders.

Cream intended for modification of milk shall contain a definite percentage of fat, which shall not vary more than 2 per cent from that stated on the label. It shall only be very faintly acid, free from foreign additions, free from pus-cells and pathogenic micro-organisms, and shall not contain more than 30,000 micro organisms of any kind per cubic centimeter.

GENERAL REQUIREMENTS.—Every facility shall be offered at all times to the members of the Commission or its experts for making inspections. All inspections shall be made without previous notice.

It is obvious that these requirements can only be fulfilled by farmers or dairymen who have their own dairies, so that everything shall be under their direct control. The Commission will, however, permit the dairy farmer to distribute his milk to customers through an agent in the city provided such agent makes a contract with this Commission which will insure his furnishing only "Certified Milk" to such customers who order "Certified Milk." The agent's contract shall also embody requirements for the manner of storing, transporting and distributing "Certified Milk" so as to safeguard the continued purity and cleanliness of such milk.

If such agent sells ordinary milk alongside of "Certified Milk" he shall give bond which he shall agree to forfeit if it is shown to the satisfaction of a quorum of the Board Directors of the St. Louis Pure Milk Commission, that he or any of his agents or employees has in any one sale substituted ordinary milk for "Certified Milk."

If the milk or cream is found up to the standards and other requirements are met, the producer will receive a certificate as follows:

St. Louis Pure Milk Commission.

Date. . . . . To Whom It May Concern.

The veterinary inspector of this Commission has examined the dairy of . . . ., and reports it to be in excellent sanitary condition, and employees and cows healthy.

The bacteriologist reports the milk or cream of said dairy free from micro-organisms within the limits of the standards of the commission.

The chemist reports that the milk or cream is of the standard composition, and that he has discovered no impurities, preservatives, coloring matter, thickeners or foreign substances.

The Commission certifies to these statements of the examiners, it being understood, however, that this certificate is good for only one month from date.

.... Signature of Commission.

The producer furthermore engages to give with each bottle sold a label similar to the following :

St. Louis Pure Milk Commission.

Milk Commission Certificate.

Date, ....

Milk or cream from the dairy of .... has been recently examined by the experts of the Commission and found to be up to the required standards of excellence. Another examination will be made within a month, and, if satisfactory, new labels for the bottles will be issued, dated ....

[Notice the date.]

St. Louis Pure Milk Commission.

8. The party of the second part agrees to pay to the party of the first part 1 per cent of the gross receipts from the sale of "Certified Milk and Cream" This sum shall be paid monthly. No later than the 10th of each month, the party of the second part shall file with the Secretary of the Certification Committee a statement of his receipts from the sale of "Certified Milk and Cream" during the next preceding calendar month. He shall also file such statement with the Treasurer of the St. Louis Pure Milk Commission and pay to him 1 per cent of this sum. The party of the second part agrees that his books shall be accessible to an auditing committee of the party of the first part at all times.

From the proceeds of this sum the Commission agrees to defray the expenses of making tuberculin tests, inspections of the health of animals and employees, inspections of the dairy premises, chemical and bacteriological examinations of the products of the dairy and expenses incidental thereto. If at the end of the year a balance is left after defraying the expenses of certification, such a balance shall be used to dispense pure milk to the poor.

9. The Commission agrees that none of its members shall receive any compensation for their work. The Commission further agrees that no member of its Board of Directors, or of its Certification Committee or Executive Committee and none of its experts shall be financially connected with any dairy selling milk in the city of St. Louis or its suburbs.

10. It is further agreed by the party of the second part that should he fail to comply with any of the terms and conditions of this agreement, or the requirements as herein above set forth, the party of the first part shall have the right and privilege to withdraw its indorsement as to the quality of the milk and cream so sold or produced by the party of the second part. In the event of the party of the first part withdrawing its recommendation, the party of the second part agrees not to use any of the certificates or labels that may be in his possession and acquired by him of the party of the first part, with the purpose or object in view of having his customers believe that he has met all of the requirements and complied with the terms of this agreement.

11. It is further agreed that should the party of the second part violate this agreement and use without authority from the party of the first part any certificates or labels as herein described, that he will pay to the party of the first part as liquidated damages, the sum of \$50 for every label or certificate so used. The party of the first part shall have the right at any time, should it so determine that the party of the second part has failed to comply with this agreement or any of its requirements as above set forth, to withdraw its recommendations and approval, as to the quality of milk or cream so sold or furnished by the party of the second part.

12. It is furthermore understood and agreed that nothing in this contract shall prevent the abrogation of any of the provisions of the same by the party of the first part, provided that it shall be done for the purpose of substituting other provisions designed to promote the objects of this organization.

13. It is furthermore understood and agreed by and between the parties hereto that the party of the second part shall be at liberty to cancel this agreement by giving one month's notice in writing, of his desire to do so, in case of disability for any reason to comply with the terms of same. And in said event, the party of the second part agrees not to use any of the certificates or labels in any way in the conduct of his business, that may have been issued and delivered to him by the party of the first part; and should it be discovered that the party of the second part has used said certificates or labels in way, the party of the second part agrees to pay to the party of the first part as liquidated damages, the sum of \$50 for every violation of this part of the agreement.

In Witness Whereof, the St. Louis Pure Milk Commission has caused these presents to be signed by its President, its corporate seal attached and attested by its Secretary, and the party of the second part has also attached his signature, the day and year above written.

St. Louis Pure Milk Commission.

Attest: . . . ., Secretary.

By . . . ., President.

## LEADING ARTICLES.

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### SURGERY OF VARICOSE VEINS.

Various surgical procedures have been instituted for the relief of varicose veins, but only a few have afforded permanent satisfaction. The pin and other useless methods have sunken into a dishonored grave.

In 1891 Trendelenburg<sup>1</sup> presented a valuable memoir upon the subject and advocated the excision between double ligatures of a short piece of the internal saphenous vein in the thigh to protect the varices from the pressure, and reflex of blood from the common femoral and venous trunks above it. He reported many successful cases thus treated.

Trendelenburg found that, in some cases, by mere posture, raising the limb, the varices became emptied, and continued empty or became but partially filled out when the upright position was resumed, so long as the saphena vena in the thigh was compressed. To this symptom Gould has given the term, "Trendelenburg's symptom." Mr. Gould<sup>2</sup> found this symptom quite frequently in varicose veins. He has reported 50 cases operated upon after the method advocated by Trendelenburg, 39 of which have been examined or heard from several years thereafter, and the results were excellent. Mr. Gould found that in every instance the pain had been relieved and the dilated veins had undergone marked shrinking. In a few instances the edema had not entirely disappeared.

Mr. Gould feels confident that if we should insure success from the Trendelenburg method we must obliterate the saphenous vein close below the entrance into the femoral vein.

Borden<sup>3</sup> favors early operation. He leans toward complete excision in all cases in which no contraindications are present. His second choice is multiple ligation, or excision combined with ligation. The Trendelenburg operation is reserved for contraindicated cases, and where the entire saphenous is dilated.

Blake<sup>4</sup> has tried to trace 25 cases treated in the Boston Hospital. He thinks that the following points should be settled:



1. To determine how often the deep veins are actually and clinically affected, in connection with superficial varicosity, and how it is possible to determine the condition of these deep veins before operation.

2. To subject a large number of cases of all degrees of varicosity, and its complications, to the same method of treatment, and trace the results carefully for one or two years. This method of treatment might be the unmodified Trendelenburg operation or this operation combined with local dissection.

Just recently, Mayo<sup>5</sup> presented a monograph upon the subject. He holds that the essential predisposing cause of varicose veins is a congenital defect in the vessels or their enervation and that such a tendency may be aggravated by occupation, child-bearing, injury or constipation. The symptoms caused by varicose veins may be fulness of the leg, edema, pain from the nerve irritation, increasing in severity with use, distension of the veins, with at times a venous circulation in the internal saphenous from the saphenous opening to the popliteal vessels. Pruritis occurs often, with or without eczema, also pigmentation and discoloration of the skin, and varicose ulcers. The symptoms complained of by the patient are those produced by the disturbed venous return.

Mayo mentions the Shoede method with which he has had considerable experience. The Schoede method has been a very popular one in its day, but is at present not so extensively advocated.

Schoede introduced the method of cutting through all of the superficial structures to the muscles, with ligation of the large veins and then coaptation of the skin thereby impeding all the circulation below the incision. The method is very simple and often efficacious. It sometimes happens, however, that the patients complain nearly or quite as much of the numbness from the section of the cutaneous nerves and slight edema following, as they did of the previous condition. Gangrene of the foot may develop. If the venous circle of the thigh existed, it was of course but little benefited. Ligation or excision above the knee was then necessary.

Mayo further holds, that the intercommunication of the superficial with the deep veins and the external saphenous veins in the popliteal region often delays and may prevent recovery. He found the excision method gave good results but required too much time and opened a large cutaneous area for increased possibilities of infection. The region of the knee, from flexion, often developed a form of keloid or

scar eczema. Operation upon the veins below the knee by local incisions and ligations give benefit at least for a time but do not control sufficient area, as a rule, unless made more extensive than apparently warranted by the conditions.

Mayo has operated 125 times for varicose veins. He makes an oval incision in place of the circular as advised by Schoede, and combines it with excision of the ulcer when present.

He is partial to the excision of the long saphenous for the majority of cases. His earlier operations were by a long incision over the vein. Considerable time was required to close the wound and it seemed quite a serious operative procedure.

Some years ago the objection was overcome by a long incision both in the thigh and in the leg, leaving 5 or 6 inches intact at the side of the knee. The vein was separated above and below, and under slight tension a pair of forceps was employed to enucleate and loosen the vein in the uncut area. Gradually Mayo increased the method of subcutaneous enucleation until the entire vein was removed by means of three to five incisions of one inch in length.

More recently, however, a ring vein enucleator has been devised, which consists of a one-fourth inch ring of steel with a long handle, the whole instrument being not unlike a blunt uterine curette, which would possibly serve the purpose with the ring bent at a more acute angle. A pair of long, heavy forceps has also been made, which are hollowed out in each blade, so as to form a long tube when closed, about one fourth of an inch in diameter. The vein is sought for and severed in the upper third of the thigh. The proximal end ligated, the lower end is clamped an inch from the end which is passed through the ring of the enucleator or placed in the tube of the forceps and the clamps are transferred to the end of the vein. By a gentle pushing force the ring or forceps is pushed down the vein, held tense for 6 or 8 inches, tearing off the lateral branches when the point of the instrument is forced against the skin from beneath, and a small incision made in the skin to the ring or forceps which is pushed through the opening, holding the vein like a thread in a needle eye. The vein loop is drawn out of the opening and also from the instrument which is re-threaded on the vein, and again forced through the new skin opening, following the vein, and is pushed down to a lower point where the incision is again made and the same process of removal repeated. Mayo finds that the small branches torn off usually possess enough

muscle structure to close themselves. Below the knee the branches are larger and the vein more adherent so that only a short distance can be traversed.

Hemorrhage is first avoided by using a gynecological standard. Should any branches cause more than momentary hemorrhage, they can be checked by a small pack or, an assistant can check it by a pressure pad held against the skin over the region from which the blood escapes from the vessel. This method has reduced the time for operation very considerably, and has placed it in the class of relatively trivial operations, although sepsis may render it one of the most serious.

In a very few cases where the veins are enormously enlarged and irregularly dilated the stripping process through the whole extent of the saphenous is impossible. Bustol's method of torsion removal is then resorted to as an adjunct to the enucleation treatment.

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<sup>1</sup>Beitrage zur Klin. Chir., Band 7, 1891.

<sup>2</sup>Lancet, August 8, 1899.

<sup>3</sup>Med. Rec., December 29, 1900.

<sup>4</sup>Boston Med. and Surg. Jour., Vol. 147, 1902.

<sup>5</sup>St. Paul Med. Jour., September, 1904.

[E. H. B.]

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#### ETHERIZATION.

To the conscientious surgeon, the selection of the anesthetic is always a very important and somewhat perplexing question. As a general anesthetic, chloroform has been the more extensively employed because it could be readily administered, and at all times. Its one great objection lies in the fact that it is a cardiac depressant, hence more dangerous than ether. In some cases, however, such as, in excision of the larynx, aged persons, and children, it has been regarded as the more preferable—in the former instance it would be very difficult indeed to administer ether.

Ether is undoubtedly a safer anesthetic than chloroform, but is more irritating to mucous surfaces and requires more time for administration. It is quite probable, however, that many of the objectionable features are due to the faulty technic of administration. The inhalers usually employed prevent the ingress of oxygen-laden air, thus necessitating the inhalation of air heavily charged with the vapor of ether, and carbon-dioxid and other impurities. Some inhalers are to be absolutely condemned. When we carefully consider the subject we wonder why the patient don't struggle more.

Very recently our attention has been called to a very ingenious and efficacious method of etherization that seems to closely approach the ideal, and which may be succinctly described as follows: Over a common chloroform inhaler is placed several layers of plain gauze; protect the patients eyes by means of pads of cotton since anesthesia causes the lids to open; cut two small grooves the entire length of the cork accompanying the can of ether; in one of the grooves place a small piece of cotton, then by proper application and tilting of the can it is possible to permit the ether to escape at the rate of 80 drops per minute; place the inhaler over the patients face and direct him to breathe slowly and regularly through his nostrils; it may be necessary to place a partially folded towel about the patient's chin and over the lower part of the mask thus increasing the absorption of the anesthetic; gradually, and usually quietly, the patient passes off into a quiet sleep devoid of the usual stormy manifestations of ether anesthesia; pulse remains strong and regular, and the respiration deep and satisfactory. Just as soon as the patient loses consciousness it may be advisable to remove the additional gauze from the mask; the ether is then dropped directly on the gauze of the inhaler. Of course, this so-called drop-method requires more ether since a considerable quantity is lost by evaporation, but the increased safety of the method far surpasses the insignificant cost. In the cases in which we have employed the drop-method perfect satisfaction has been obtained and we would bespeak for the method, kind and careful consideration. We always employ ether whenever possible and do not consider age any contraindication to its use. In fact, we feel much safer when our patient of advanced middle age is being etherized than we do when chloroform is being administered.

[E. H. B.]

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### THERAPEUTIC RESULTS IN RADIOTHERAPY.

Belot has compiled from the electrotherapeutic clinic of Brocq a complete statement of indications and uses of xrays. The following abstract is made from a review of his work in *Le Journal de Médecine et de Chirurgie*, of September 10, 1904.

The xrays as a depilatory agent.—The usefulness of the rays here is unquestioned, but the greatest difficulty is encountered as to dosage. An insufficient exposure commonly producing an augmentation in the hairy growth, and too large a dose causing marked and extended alo



pecia, with sometimes undesired lesions of the skin. This method should be limited only to such cases as can not be treated by individual electrolysis.

In tænia tonsurans and the parasitic sycoses of the beard and of the nails, particularly in the ravages of microsporan audouini, trichophyton tonsurans and trichophyton toudante (Greeley-Sabouraud), the results obtained are far superior to those obtained by any methods heretofore known. The xrays here should surpass all other measures.

In folliculitis, especially of hairy parts, a very satisfactory result is obtained, better than by other methods, which, as is often experienced are used without success.

In alopecia areata the results are, of course, extremely variable; in recent cases the outlook seems to be very much better than in those that have already existed some time.

In acne, results are, likewise, subject to a broad variation, only cases in which other methods have failed should be thus treated. many successes, however, have been reported.

In psoriasis, cases that have not benefited by any known procedure have yielded to xrays, although certain inveterate ones have shown little or no result.

In the broad category of the pruriginous dermatoses, the results have been entirely remarkable, the effect being manifested not alone on the pruritus *sine materia*, but as well on the concomitant dermatitis. Cases of anal and vulvar pruritus, pruritus with lichenification, the circumscribed neurodermatoses, and Hebra's pruritus have all been very favorably influenced, and many cured.

In lupus vulgaris there seems to be a field reserved for radiotherapy as well as for phototherapy (Finsen), this is, perhaps, because of the sclerogenic properties of both. The latter is more difficult of application, takes more time and does not penetrate. It requires more exposures than the method of Roentgen. In lupus, Belot claims that insufficient work has been done for a comparison of the two methods and claims for radiotherapy possible advantages.

In lupus erythematosus radiotherapy has done no more than has been accomplished by other methods, but it has done as much, and the benefit gained requires less time.

Keloids have been much improved in three case (Belot).

Sarcoma in the skin has been repeatedly cured, and in one case

of mycosis fungoides a retrogression was produced with better success than has yet been obtained in this affection.

In verruca plana repeated cures have been made.

In epithelioma of the skin the results have been almost uniform, the evolution of the disease under treatment is described as follows: The earliest effect is a rapid diminution of pain, its cessation being obtained in a few weeks; modification of ulceration, followed by a change from a yellowish, bleeding surface to a freely weeping aspect. This result is almost constant and is always to be expected in ulcers that are surrounded by a thickened projecting border. Next, the intensity of feter is diminished very gradually. The raised edges then become more flattened and the wound contracts, the deep induration lessens and the tendency to frequent bleeding disappears. Of 27 cases treated at the Broca Hospital, 15 were objectively cured, 7 were very nearly well, 8 were still under treatment, and 4 quit the service. Recurrence was noticed in but one case.

Epitheliomata of the mucosæ, *e.g.*; lips and tongue are much less favorable to treatment than when the scar can be obtained in the skin. Epithelioma of the lower lip has never been cured at Brocq's clinic. Cancer of the tongue has yielded several successes but the necessary technic still offers many disadvantages. Cancer of the soft palate has been cured by Mecaw, and cancer of the larynx by Bécclère, but such cases are still very exceptional.

Cancer of the breast has yielded very variable results. A most satisfactory field here is in treating post-operative recurrence at the wound edges, especially where there is no fresh glandular involvement or metastasis. Even when an adenopathy exists retrogression is sometimes obtained.

The cure of a primary cancer of the breast by the xray is as yet not a settled possibility, but great benefit can be obtained by calming the pain and delaying the progress of the trouble. As a palliative method it deserves a place in the therapeutics of this disease. When surgical intervention is possible in these cases it is the method of choice, to be followed, perhaps, by radiotherapy.

As to results said to have been obtained in carcinoma of the deep organs—stomach, intestine, omentum, uterus, little can yet be said. Such results have found but insufficient proof.

A great deal is yet to be expected from the xray, for the apparatus in use has still many imperfections and fallacies in treatment are common.

[A. S. B.]

## SOCIETY PROCEEDINGS.

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### MEDICAL SOCIETY OF CITY HOSPITAL ALUMNI.

*Meeting of December 15, 1904; Dr. Charles Shattinger,  
President, in the Chair.*

Dr. GEORGE C. CRANDALL read a paper (see page 279, this issue) on

#### **Methylene Blue Eosin Blood Stain.**

##### DISCUSSION.

Dr. WALTER BUAMGARTEN said the one thing to be desired in the preparing of a stain was the obtaining of a uniform stain, one giving uniform results. Heretofore that had certainly not been the rule in stains prepared by the manufacturer or by the individual. He thought Dr. Crandall had done a very considerable service in devising a definite method that would give definite results.

Dr. CARL FISCH agreed with Dr. Baumgarten that in using the eosinate of methylene blue one should have a reliable method, and he appreciated how much work it had cost Dr. Crandall to lead to these results. Of course, his method of preparation properly followed must give absolute results. The trouble with the Romanowsky solution had been all along that the methods of preparing the solution were uncertain and unreliable. Any solution would give the same stain if properly prepared. But all of these solutions undergo secondary changes, that interfere with their staining capacity. So, too, will do Dr. Crandall's solution. But the attempts to utilize the isolated active principle of this solution for staining had succeeded and since that had been done two years ago there was no reason to bother any more with such mixtures. The disintegration of the methylene blue varied greatly according to surroundings and can not be controled. Any slight change in the alkalinity or any slight change in the temperature would make a difference. Methods to prepare the active chromatin-staining principle, the methylene azure have been discovered so that

today the azure stain is as exact and certain as other histochemic reactions. The material could be easily obtained and could be used with greater facility than the method just described. A disadvantage of all the staining solutions was that the stain did not remain constantly in the solution, the solutions after a time lost their staining efficacy, while the methylene azure stains kept for years and gave always absolutely the same results. That being true, why bother with the solutions? The method was now in use everywhere except in America.

The PRESIDENT said that blood stains in general and Jenner's stain in particular had caused him agonies, and he felt exceedingly grateful to Dr. Fisch for having put him in the way of using the chemical principle itself. As Dr. Fisch had said, all that was necessary, was to prepare the azure and the eosin solutions in proper strength to get absolutely certain results. It never failed. He fixed the specimens with C.P. methyl alcohol which he obtained from Henry Heil. He had not been aware that it contained any acetone, but it made no difference for the stain came out just as well. To get a perfect stain, as Dr. Fisch had instructed him, required an hour's time, while with Jenner's stain it took but one minute. He had not found it a disadvantage to let the blood remain in the staining solution an hour because he could meanwhile attend to other work, then wash it off and it was ready. One of the great troubles with the Jenner's solutions that he had tried was the precipitates that formed on the slide. In some of his earlier experiments he had been misled by those precipitates, not having recognized them as such. He felt satisfied that the use of the chemical principle was in the large majority of cases the preferable procedure.

Dr. FISCH said that it was possible to get the stain so prepared that but two or three minutes were required.

Dr. CRANDALL, in closing, said that in regard to the stain of which Dr. Fisch had spoken, he had used that and had adopted the one he now used on account of the time. The stain that he used could be gotten ready for the microscope in five minutes. When one was examining a number of specimens that was an advantage. With this stain he had always obtained good results. He had stains a year old that gave fairly good results and for six months it stained well and rapidly. With this no fixing was necessary. Students, after a few tests, learned to use it quickly and easily. As to obtaining a precipi-



tate on the slide there was but little difficulty. Most of the films were absolutely free from any precipitate, and it was not difficult to recognize the precipitate, as such. The Jenner stain was not a chromatin stain. There was no methylene azure or methylene red in that stain. With that one could not stain the nuclei of malarial organisms. The reliability and quickness of the stain described were the important advantages. If the manufacturers would make the mixture in a way to control staining power, it would have an advantage over any stain that he had seen. As to the chemistry of the stain, a paper that had been written by Dr. Baumgarten gave a good review of the stain.

Dr. GEORGE C. CRANDALL read a paper (see page 275, this issue) on the

### Macroscopic Blood Test.

#### DISCUSSION.

Dr. R. B. H. GRADWOHL had tried this test and been very successful, having gotten a quantity of the tubes from Parke, Davis & Company. It seemed to work very well and he believed it was a good thing for those who could not keep a culture going.

Dr. FISCH said that the idea that the Widal reaction as usually made was of diagnostic value, was erroneous. If this were true, that the diagnosis of typhoid could be made by the methods used it would be a very valuable addition. Seemingly all records showed that the Widal reaction had in the great majority of cases coincided with and confirmed the clinical diagnosis. In America the Widal reaction was made from a drop of dried blood, the volume of which was not known. The bacteriologist in making an agglutination reaction must know absolutely the exact quantity of the substances reacting upon each other to be able to draw his conclusion. It was well known now that sera that agglutinated typhoid bacilli agglutinated other bacilli. In normal persons there was found a reaction in which the agglutination was obtained in a dilution up to 1 in 200. In the Widal reaction when carried out in the ordinary way, he felt certain that the dilution never reached more than 1 to 50, rarely up to 100. And such a positive Widal reaction could not make nor confirm a diagnosis. The observation that so many of the Widal reactions coincided with the clinical diagnosis simply expressed the fact that the serum of a typhoid patient in a dilution up to 1 to 200 must necessarily give this reaction, since

it gave it always at dilutions up to 1 to 5,000, this reaction, therefore, simply coincides with and prove the presence of typhoid, but does not diagnose it. The Widal reaction was a reliable, but difficult method if performed properly; it was reliable only when the limit of dilution, at which agglutination occurs, would be known, and when at the same time the limit for other bacilli was determined. In Germany they did not think of making it in any other way. Too much stress could not be laid upon the practical importance of the results obtained when it had been scientifically carried out. It may be that in the future there would be found a more accurate way for practical application but until then we could not draw any conclusions alone from the positive results obtained after the present methods.

Dr. CRANDALL, in closing, said that it was true that the more accurately these tests could be made, the better, but he felt sure the doctor did not mean to greatly disparage the Widal reaction. In Johns Hopkins, where they had reported a large series of cases, they obtained the serum in a small capillary tube for the purpose of graduating the quantity. The Parke, Davis & Company method was similar to the Ruediger. The physician drew 15 or 20 drops of blood and pured the serum into other tubes. He had had several Parke, Davis & Company's tubes and tried them side by side with the Ruediger method. He did not agree with Dr. Fisch in his disparagement of the Widal test and he thought this particular method would be of advantage to physicians in the country. It would control many diagnoses and it was possible that it might be found of use even in St. Louis. Replying to Dr. Sharpe, Dr. Crandall said that he had tried the method on malarial blood and had never obtained the agglutination.

Dr. HOWARD CARTER asked if Dr. Crandall had tried the effect upon the blood of a patient who had had an attack of typhoid within a year or two. He understood that within one or two years the blood continued to give the Widal reaction.

Dr. CRANDALL replied that he had never tried it, but it had been reported that in one case the blood had given a distinct Widal reaction after fifteen years.

## THE BETHESDA PEDIATRIC SOCIETY.

*Meeting, February 10, 1905.*

Dr. CARL FISCH read a paper (see page 257, this issue) on the

**Shiga Bacillus.**

## DISCUSSION.

Dr. TUTTLE quoted the work done by the Rockefeller Institute in support of the ground assumed by Dr. Fisch in his paper, touching on the rôle of Shiga's bacillus in the summer diarrheas of infants. The work so far demonstrates simply that this disease is bacillary, but that is as much as has been shown. All types of the disease, the simplest and gravest forms, presented alike this bacillus. It was furthermore discussed that the Shiga bacillus was present occasionally in healthy infants, in all the cities of the Atlantic Coast. Therapeutically no results have been obtained that might give us assurance. The anti-dysenteric serum has done neither harm nor good. In conclusion, it is then seen that the summer diarrheas of infants are not the result of infection by Shiga's bacillus alone, but are undoubtedly the result of the absorption of the toxins of many bacilli of different kinds.

Dr. LIPPE stated we have yet not ascertained the capacities of the toxins produced by the many bacilli present in these cases. He then drew attention to the fact that the bacillus described as Shiga's bacillus was found by Chantemesse in 1882, and that it has been conclusively and satisfactorily shown that these bacilli are identical.

Dr. BEHRENS spoke of a case of summer diarrhea in an infant he had treated last summer, a serum test was made and found to be negative, later the blood caused agglutination of typhoid bacilli, the case was then considered to be typhoid fever.

Dr. ZAHORSKY stated he had used the antidysenteric sera from two different firms, in private work and at Bethesda, without results.

Dr. FISCH, in closing, once more pointed out the fallacy of ever hoping to cure these cases with antisera. The efforts have afforded sufficient evidence of failure.

Dr. LIPPE read a paper (see page 277, this issue) on

**Epithelioma of the Face.**

## DISCUSSION.

Dr. FISCH remarked about the subject of tumor formations, that

there still existed the greatest perplexity as to their origin. The most reasonable of all opinions is the theory of the inclusion of forming tissues; a nest of cells in this manner being shut off from surrounding tissues. Such inclusions can be demonstrated with striking frequency in the fetus, their most frequent site being near the inner canthi, in the proximity of the nasolabial folds and in the gums. It is for this reason that most of all skin epitheliomata are found in the region in which this one of Dr. Lippe's was present. These inclusions may contain but a few dozen cells, they are, therefore, none the less true carcinomata, and their growth into large masses occurs usually through some external irritation.

Dr. ZAHORSKY remarked on the similarity of this theory to the one propounded by Cohnheim.

### Clinical Reports.

Dr. TUTTLE reported a case of

#### Congenital Dilatation of the Colon.

The child, a girl, aged 5 years, of Boer parentage; father, mother and ten sisters and brothers living and healthy. She had been breast fed during her first year and had then been nourished on a coarse cereal diet—cornbread, oatmeal, beans, etc. She had had the usual diseases of early childhood, but there was no record of any digestive disturbance.

Her history showed that she had always had a markedly prominent abdomen and it was for this that she was brought to Martha Parsons' Hospital (where the case was seen). Development otherwise satisfactory, except that she was rather short of stature.

The size of the abdomen was 22 inches at the umbilicus, when standing. The tympanites and visible peristalsis of the colon were the leading diagnostic symptoms. There was no vomiting; the appetite voracious, and what was particularly noteworthy, she did not have constipation, but instead, there existed a persistent diarrhea. Rectal examination revealed the usual ballooning of the sigmoid found in these cases. There was no stricture, or other finding.

Treatment consisted of proteid diet and strychnia; daily enemata solution adrenalin chlorid was resorted to without success.



## REPORTS ON PROGRESS.

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### MEDICINE.

In Charge of EDMUND A. BABLER, M.D.

#### Duodenal Ulcer.

Sir D'Arcy Powers (*Brit. Med. Jour.*) calls attention to the fact that this subject has not received adequate consideration, though the onset is severe and the sequelæ may be dangerous. The cases fall into two groups—perforative and non-perforative. The diagnosis of the non-perforative is the more difficult and interesting. The patient is usually between 50 and 60 years of age, thin and haggard; he has dieted himself for a long time without benefit; for months he has suffered atrocious pain which later is relieved by vomiting; bowels constipated; marked emaciation; extremities cold; stomach greatly dilated and the tumor may be felt, while a careful history may show that when about 30 years of age he brought up large quantities of blood without much effort or discomfort. The writer holds that there is no pathognomonic symptom of duodenal ulcer. The sequelæ may be of the greatest importance. The ulcer is usually single, small, conical in shape and most often situated in the first part of the duodenum close to the pyloric fold. It runs a chronic course and may either heal and by subsequent cicatriction narrow the duodenum or, as more frequently happens, adhesions may be formed to surrounding parts. The adhesions finally contract and may so narrow the duodenum as to render it useless for the passage of the contents of the stomach. The adhesions may involve the liver, gall-bladder pancreas or the great blood vessels. The patient wastes, his stomach becomes dilated, impediment of the deep venous circulation occurs, as is manifested by the superficial venous dilatation, and a swelling is readily detected in the region of the pylorus.

Symptoms last longer in non-malignant cases than in cancer; the dilatation of the stomach is consequently greater and the attacks of vomiting are worse at night; these attacks bear no relation to the meals. The patient becomes thin, the skin is dry and rough, he is se-

verely constipated and passes but little urine ; the attacks of vomiting come on every day or two, very large quantities of fluid are vomited and sometimes there are streaks of blood, sometimes there is bile. The stomach seems to be completely empty, yet in a few hours he again vomits copiously though he has taken nothing in the interval. The vomit is often very acid, owing to the hydrochloric acid, and the fluid is clearly the secretion of the gastric and duodenal glands. The patient thus constantly drains the lymphatic system and the gastric juice that should be subsequently absorb it is lost.

Although the ingestion of food does not produce vomiting, yet the patient curtails his diet as far as possible, because nearly everything he eats causes a sensation of weight and fulness in stomach. Hiccough may be a very marked and troublesome feature and the patient becomes so restless and miserable that he can not long keep still in one posture or place. The writer concludes as follows :

1. Duodenal ulcer is not very uncommon.
2. Usually single ; more frequent in men than women.
3. May perforate and cause acute symptoms, or may heal by cicatrization, leading to symptoms of chronic duodenal obstruction.
4. Sequelæ may be so remote that the symptoms are mistaken for those due to cancer of the pylorus.
5. No means of recognizing the existence of duodenal ulcer, in a great many cases at least, until perforation occurs or until the results of the cicatrization becomes manifest.
6. Treatment consists of—
  - a. Direct suture of the perforated ulcer.
  - b. Gastrojejunostomy in cases of dilated stomach due to the duodenal constriction.

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## GYNECOLOGY.

In Charge of GEORGE GELLHORN, M.D., St. Louis.

### Rectovaginal Fistula.

I. Pfeifer (*Budap. Kir. Orvos.; Zentralbl. f. Gyn.*). The fisula was caused by a Zwanck-Shilling pessary applied for retroflexion nine years ago and left in the vagina for the last six years. Three years ago, patient noticed the escape of stool through the vagina. Pfeifer found in the fourchette an opening, admitting the little finger, through which the vagina communicated with the rectum. He considers the prognosis of operative intereference as being very favorable.

### Treatment of Puerperal Sepsis.

C. Taft (*Yale Medical Journal*, August, 1904) states that in spite of the great progress of bacteriology, the attempt to make a ready and positive diagnosis of the various forms of puerperal infection based on bacteriologic examinations has thus far been a failure. Taking up the treatment of puerperal sepsis which he divides into prophylactic and curative treatment he arrives at the following conclusions:

1. The most vital factor in the prevention of puerperal fever is the adoption of such rigid asepsis as is customary today in all surgical operations.

2. Almost equally important, is the removal of all predisposing causes which may diminish the patient's powers of resistance.

3. Frequent vaginal examinations during labor, and none at all when a normal condition is apparent from the external examination, tend toward improving our prophylaxis.

4. As suggested by Bolt, from our present knowledge we must still rely on the clinical aspects rather than on the bacteriological examination in order to determine the proper treatment.

5. The general treatment should consist of rest, stimulants and nourishing food.

6. Medical treatment for the severe types of infection should consist of drugs to promote phagocytosis, the use of inunction of Unguentum Crede, and hypodermatoclysis.

7. No anti-streptococcus serum of proven value has yet been discovered.

8. The use of douches, whether vaginal or intrauterine as a routine at any time either before or after confinement, tends to promote the development of sepsis. The only exceptions should be when an attempt is made to cleanse a vagina of gonorrheal infection prior to confinement and when used in connection with other treatment for a septic condition already developed.

9. A sapremia is best treated by thorough cleansing of the vagina and uterus, by means of the medicated douche, finger or curette.

10. The course of a pure, uncomplicated streptococcus infection of a severe type, is not influenced at all by any surgical procedure whatever.

11. All abscess cavities should be opened freely and as soon as recognized.

12. Vaginal drainage, either alone or combined with abdominal drainage is indicated as soon as it becomes apparent that the peritoneum has become involved.

13. A hysterectomy has a limited but not very clearly-defined field in a few cases.

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## SURGERY.

In Charge of M. G. GORIN, M.D.

### **Bacillus Pyocyaneus Septicemia Associated With Blastomycetic Growth in Primary Wound.**

Eastman and Keene (*Ans. of Sur.*). It has been held by some authorities that the bacillus pyocyaneus exist merely as a saprophyte, the weight of authority seems, however, to point to it as a definite etiologic factor producing various morbid phenomena. It was discovered in 1882, by Gessard, who regarded it merely a saprophyte incapable of producing symptoms in man. Seven years later Charrin published his researches, showing that when injected into rabbits it produced a fairly constant train of symptoms, viz., albuminuria, low fever, diarrhea, and spastic paralysis of the hind quarters. Schaefer and Cadeac later produced similar evidence. To Gruber belongs the credit of having first demonstrated that the bacillus pyocyaneus was capable of producing definite lesions in man. This bacillus is not of frequent occurrence in suppurating wounds. Janowski found it twice in 200 cases, and it was found only 11 times out of 800 autopsies at Johns Hopkins. It has been found in the sweat, saliva, sputum, fistulous tracts from large and small intestines, infantile diarrhea, appendicitis, peritonitis, pericarditis, mastitis, orchitis, etc. The author relates his own case, that of a girl 16 years of age, who was thrown on a hard road in a runaway accident, sustaining an injury to the left arm. This happened on the 18th, and it was the 21st before a physician was called, when her left arm was swollen from fingers to shoulder. No discolorization, no pain on moving shoulder, but great pain on moving elbow joint. The patient remained in this condition for four months, at which time there was no sensation in the fingers, and soon became paralyzed completely on the left side. She was at length operated on for relief of pressure on the musculospiral nerve, and reoperated on for the same purpose a month later. She regained sensation in her hand and swelling disappeared from the arm, and there was no pain.



The wound healed slowly, and at the end of a month was entirely covered with epithelium except an area the size of the end of the little finger. This was dressed with 10 per cent iodoform gauze, and a week later two small blisters the size of a millet seed were observed in the wound. They rapidly became confluent, increasing greatly in size, discharging their contents and refilling every few hours. The wound from the appearance of the blisters grew so painful that morphia had to be frequently administered. On the 16th day the wound took on a blue tint and rapidly enlarged to the size of the palm, the patient grew extremely nervous, and became profoundly prostrated. The face, arm and leg muscles twitched involuntarily. Every effort was made to heal the wound. It was curetted and the bichlorid dressing were changed every hour, yet the blue film would return. The x-ray was used for two weeks, with no effect. The Paquelin cautery and curettement, with application of pure carbolic were also ineffectual. At this time she came under the author's care. Her weight was 92 pounds (normal 185). She seemed in a stupor, and talked disconnectedly, but slept little on account of severe pain in arm and head. Temperature and respiration normal, pulse 101, skin cold and moist. On the the outer surface of the left arm was an ulcer about the size of the palm of the hand, with definitely defined and indurated margins, and slightly elevated. The color of the base of the ulcer varied from light-sky to dark-blue, there were some brown areas. Scrapings from the light-blue areas showed numerous blastomycetes, consisting of a central cell body about the size of a red blood cell, surrounded with a capsule of equal thickness. The capsule did not take the stain (Loeffler's methylen blue) readily. There were a few small bacilli in these sections. The spleen was markedly enlarged, but there was no lymphatic involvement. Under saline catharsis and moist 1/5000 bichlorid dressings changed every half hour day and night, no improvement was noted. Under general anesthesia, the blue slough was removed, obtaining a clean fresh surface, and the moist bichlorid dressings, 1/2000 continued. The patient immediately began to improve, and was free from pain. The wound began to granulate in a healthy manner. In three weeks the patient sat up, and the wound was covered with ordinary dry dressing. She put on the dress she wore on her entry to the hospital, and in a few hours was seized with a violent chill, and severe pain in the arm. Three hours later three small pinhead sized blue spots were found in the wound. They were excised and the base

cauterized. The bichlorid dressings were now changed every twenty minutes, but in ten hours the entire surface of the wound was covered with a light blue membranous exudate. Pain continued severe. Temperature remained normal. Patient became weaker, and fell into a profound stupor. Pulse 90 to 120. Cultures taken from the surface wound developed, on the fifth and eighth days two separate and distinct colonies, the one proving to be *bacillus pyocyaneus* and the other blastomycetes. The sloughing mass was again excised under ether, and treated with ichthyol-glycerin, 10 per cent. Iodid of potassium was exhibited, some recurrence was noted, but finally, under tincture ferri chloridi and saturated solution of potassium iodid internally and ichthyol dressings the wound healed to the diameter of half an inch, when she was sent to her home. At last report she was apparently well, and the wound healed with the exception of an area as large as the little finger nail. The author concludes from a study of this case:

1. There existed a general septicemia caused by the *bacillus pyocyaneus*. There was evidence of profound intoxication, accompanied by high pulse rate with temperature usually subnormal.

2. A marked and diagnostic feature was the evident nervous involvement.

3. The finding of blastomycetes in the local ulcer at once cleared the diagnosis and explained the failure of the wound to heal. The combination of the blue pus infection with the blastomycetic infection was unusual, and we have been unable to find report of a similar instance in literature.

4. We had in this case a clean incised wound healing by first intention. The wound became infected with blastomycetes primarily, and with the *bacillus pyocyaneus* secondarily. Many cases of wound infection have been observed from the *bacillus pyocyaneus*, but the ability of blastomycetes to infect clean wounds and to delay union, with destruction of tissue is not generally recognized.

### Adrenalin in Surgery.

Hildebrandt (*Berliner Klin. Woch.*) enthusiastically commends the use of this agent for anesthesia, especially when combined with cocain or eucain. He claims that when combined with cocain anesthesia may be procured with much smaller doses, toxicity reduced and its action prolonged. The fatal subdural injection of cocain for a

rat has been found to be .018 gram, while the addition of adrenalin raises the limit to .11 gram. While the author believes that the addition of cocain renders spinal cocainization much less dangerous, he does not agree with Bier that it renders this method absolutely safe, for in one obstetric case where the method of Bier was used carefully the patient succumbed. Konig has found adrenalin of great use in plastic operations on the urethra, preventing annoying bulbar bleeding. He obtains analgesia readily in about five minutes, dabbing the part with a 5 per cent cocain solution to which has been added a few drops of 1/1000 adrenalin. Anesthetization of the bladder is accomplished in about fifteen minutes by the use of 1 cc. of surparenin added to a 1 or 2 per cent cocain solution; the fluid is afterward withdrawn. In operating on the skin or subjacent tissues Schleich's infiltration method can be used with 10 drops of adrenalin to 50 cc. of the fluid. An improvement on this method, he claims, is to make a circle of injections around the field of operation with a .5 to 1 per cent of cocain and from 5 to 10 drops of adrenalin to 50 cc. At some little distance from the field a circle of blisters is made surrounding it, and the canula is then inserted into the subcutis and the surrounding tissue infiltrated, thus inclosing the field in a complete ring. By this means it is possible even to resect a rib without pain, infiltrating the subcutaneous cellular tissue, and musculature down to the pleura in the interspace above and below.

A longer interval is required when such extensive excision is performed. By injecting a 2 per cent cocain adrenalin solution across the course of the larger superficial nerves they can be absolutely deadened. Subsequent necrosis of the tissues is to be feared, however, if too strong concentrations of adrenalin are used. An injection of a few drops of a 1/5000 solution has been known to cause gangrenous phlegmons. Another danger to be guarded against is secondary hemorrhage. This may occur if the injection is of such strength that the lumen of the larger vessels is closed. In order to avoid these complications it is advised to use a 1/10000 dilution, and to interfere with the capillary circulation only.

### **Open Operation for Correction of Deformity and Restoration of Function in Ancient Colle's Fracture.**

Bodine (*Ibid.*) recently exhibited before the New York Polyclinic two cases operated upon successfully by this method. The first a boy

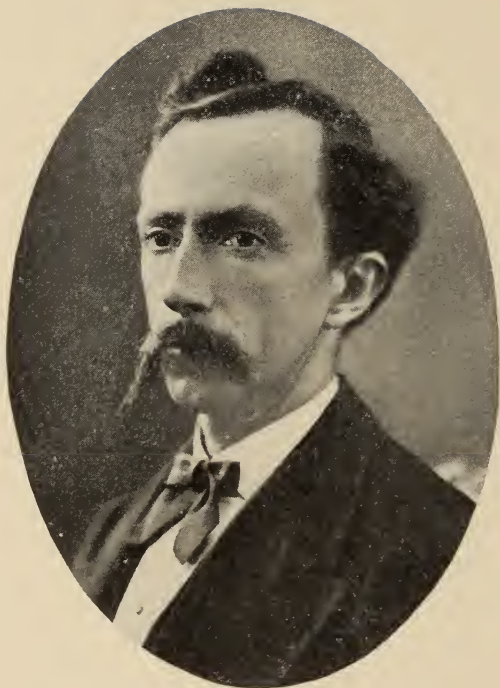
9 years of age, whom he had operated on two months after fracture at which time there was no abduction, adduction, flexion pronation or supination of the wrist, and a typical silver fork deformity existed. The operation performed was a modification of the one devised by Dawbarn, the incision being made on the dorsum instead of the radial side of the wrist. This incision was preferred on account of the uncertainty of the position of the radial nerve. A chisel is driven into the bone at the site of fracture and the arm treated as a recent Colle's fracture. Five weeks afterward every function of the wrist was perfectly restored. As to the after treatment the author advises the use of the pistol splint of Volkman, if convenient, or if not a straight piece of splinting applied to the posterior surface of the forearm, and a roller bandage so applied that the hand is pulled into a position of extreme abduction. A piece of cotton is placed between the dorsum of the hand and the splint which serves to flex the hand and does away almost entirely with pain. At the end of a week this is replaced by a plaster-of-Paris bandage moulded on the posterior surface of the forearm, and held in place by a roller. Daily massage and motion of the wrist and fingers is given. The writer has obtained good results in all cases of Colle's fracture treated in this manner, and objects to the placing of a splint on the anterior surface of the forearm, on account of the compression of the veins thereby produced, and consequent edema of the wrist and hand. The writer insists as an absolutely inflexible rule that complete surgical anesthesia is requisite to accomplish reduction of the fracture.

### **Non-Strangulated Inguinal Hernia.**

By the methods of Halstead and Bassini we have at our command two absolutely reliable methods for the radical cure of inguinal hernia. Under strict aseptic technic the operation is as safe as any in surgery, and the risk of fatal termination not worthy of consideration. The danger of relapse after an operation properly performed, is so remote that it should hardly influence ones decision concerning the advisability of operating upon any given case. Granted these propositions, every case of operable hernia in patients between the ages of 4 and 50 years should be subject to radical operation, as is the custom in the military service.







DR. J. J. McDOWELL.

*Born in 1833; Died March 27, 1880.*

*(See Biographical Sketch).*

## BIOGRAPHICAL SKETCHES.

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### DR. JOHN J. McDOWELL.

Dr. John J. McDowell, was born near Lexington, Ky., February 16, 1834, at 47 years of age, he died at Hot Springs, Ark., March 27, 1880. He came to St. Louis with his parents at the age of 6 years. His early education was obtained in the schools of St. Louis, and also Shurtleff College, Illinois. He graduated with honor at the Missouri Medical College, 1855. In the same year he began to demonstrate anatomy in this school, and filled this position until 1862. After the Civil War he held the following positions in the St. Louis Medical College: Demonstrator of Anatomy, 1867-71; Professor of Practical Anatomy, 1871-74; and Professor of Anatomy, 1874 until his death.

His father was the great surgeon, Joseph Nash McDowell, from whom he inherited marked ability as a teacher and surgeon. Most of his income was expended in charity, of which he never breathed a word. He was very warm-hearted and generous to his relatives and friends. "Beloved by his colleagues, the profession at large, the students, and almost idolized by his patients and intimate friends, his death in the prime of life, in the noonday of his usefulness and ambition, awakened great sorrow."

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### DR. JEREMIAH S. B. ALLEYNE.

Dr. Jeremiah S. B. Alleyne, who for almost fifty years stood foremost in the medical profession in St. Louis, was born in Boston, Mass. in 1826. When 13 years of age he came to St. Louis, where he attended school. In 1842, he entered the St. Louis University and graduated with the degree of A.B. in 1845. After this thorough academic education he chose for his vocation the medical profession. He graduated from the St. Louis Medical College, in 1848. He commenced medicine soon afterward and rapidly rose to eminence. In

1867, he received the position of Professor of Materia Medica and Therapeutics in the St. Louis Medical College. The Chair of Pediatrics was also bestowed upon him in 1877. He was Dean of the Faculty from 1882 to 1890. In that year he severed his connection with the St. Louis Medical College and was subsequently connected with the Beaumont Medical College. At the time of his death he was Dean of the Barnes Medical College.

He died very suddenly on May 2, 1895, at the age 79 years. He left a wife and daughter.

Dr. Alleyne was generally admired as a physician and citizen. As a medical teacher he was excelled by very few. He always took a great interest in all matters pertaining to the medical profession,—a profession which he held very high. He was sincere in speech, polite in manners, and generally regarded as a gentleman.

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### Special Trains for Physicians to Portland.

The American Medical Association will meet at Portland, Oregon, July 11-14. Special arrangements are being made to accommodate physicians who contemplate attending the meeting. Special trains will leave Chicago on June 30 and July 1; a third train leaving Chicago July 6, will arrive at Portland the morning before the convention convenes. Never before has such an opportunity been offered for physicians to study the beauties of the West. Berth reservations should be made at once through C. A. Matthews, General Agent Passenger Department Northern Pacific Railway, Chicago.

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### "The American Journal of Surgery."

Dr. Joseph McDonald has severed his connection with the *International Journal of Surgery*, and having purchased all rights in the *American Journal of Surgery and Gynecology*, with the April number it will be issued from New York City as the *American Journal of Surgery*.





DR. J. S. B. ALLEYNE.

*Born in 1827; Died May 2, 1895.*

*(See Biographical Sketch).*



## BOOK REVIEWS.

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*The Courier of Medicine Company will mail, postpaid, any book reviewed, on receipt of price.*

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### **Lea's Series of Medical Epitomes.**

Series edited by V. C. Pedersen, A.M., M.D. Lea Brother & Company, Philadelphia and New York.

### **Hollis' Epitome of Medical Diagnosis.**

A Manual for Students and Physicians. By Austin W. Hollis, M.D., attending physician to St. Luke's Hospital; to the New York Dispensary, etc. In one 12mo volume of 319 pages; with 13 illustrations. Cloth, \$1.00, net. Lea Bros. & Co., Philadelphia and New York. 1905.

For the student this is a very handy and trustworthy manual. The practitioner will find it useful as a ready, quick review of the main points in diagnosis. As an epitome it is recommended.

### **The International Medical Annual.**

A Year-book of Treatment and Practitioner's Index. 1905, Twenty-third Year. Price, \$3.00. E. B. Treat & Co., New York.

For some years the volumes of the "Medical Annual" have tended to assume the proportions of middle-age; they grew in bulk without any increase in height. The publishers have sought to minimize this fact in various ways, but it has now been found necessary to adopt a larger page. This volume commences a new series that will require more room on the book-shelf. The same plan as the previous volume has been retained. The work opens, after a general review, by a dictionary of remedies. Recent investigations on the action of drugs are concisely recorded. A very interesting chapter is the one on serum therapeutics and organotherapy in which the subject of immunity receives attention. Radioactivity and electrotherapeutics is also given a separate chapter.

The dictionary of treatment follows the usual plan of taking up the diseases alphabetically, after a general review of the different departments of medicine. Tropical medicine is receiving much attention in this volume. The chapter on sanitation is rather too brief. Many fine halftones and colored illustrations elucidate the text.

### **Text-Book of Insanity.**

Based on Clinical Observations. For practitioners and students of medicine. By Dr. R. von Krafft-Ebing, late professor of psychiatry and nervous diseases in the University of Vienna. Authorized translation from the latest German edition, by Charles Gilbert Chaddock, M.D., professor of diseases of the nervous system in the Marion-Sims-Beaumont College of Medicine, Medical Department of the St. Louis University, with an introduction by Frederick Peterson, president of the New York State Commission of Lunacy. F. A. Davis Company, Philadelphia. 1904.

The wide adoption of the classification of the late Professor von Krafft-Ebing, makes the translation of his work a really important event in American psychiatry, bringing within the reach, as it does, of American students and physicians the results of the labor of the most honored psychiatrist, perhaps, the world has yet seen.

Frederick Peterson, in his introduction, says, "There is no better practical clinical exposition of the facts of morbid psychology." Were there any doubt in our mind as to the value of this translation this should effectually clear it away. For some years students who knew not the German language were limited in their knowledge of Krafft-Ebing to his work on "Psychopathia Sexualis." They have waited until now to have an insight into a work which has run through several editions in German.

The methods used by Krafft-Ebing were in the nature of a revelation in the study of psychiatry, and his work will live through many generations. We feel that Dr. Chaddock is entitled to the cordial thanks of all whose study require the use of a text-book on this subject, for bringing to them the methods, the classification, the clear insight of the greatest of German psychiatrists.

### Thoughts for the Occasion.

Fraternal and Benevolent. Reference Manual of Historical Data and Facts. Helpful in suggestive themes, and in outlining addresses for the observance of timely or special occasions of the various orders, compiled by Franklin Noble, D.D., editor of the "Treasury Magazine. Price, \$2.00. E. B. Treat & Co., New York. 1905.

This seems to be a fourth volume of a series, the others being—Patriotic and Secular, Anniversary and Religious, and Memorial Tributes, etc. Physicians will be especially interested in the Fraternal and Benevolent.

### The Urine and Feces.

A Practical Manual on the Urine and Feces in Diagnosis. By Otto Hensel, Ph.G., M.D., bacteriologist to the German Hospital, New York, and Richard Weil, A.M., M.D., pathologist to the German Hospital, New York, in collaboration with Smith Ely Jelliffe, M.D., Ph.D., instructor in pharmacology and therapeutics, Columbia University; visiting neurologist, City Hospital, New York. In one octavo volume of 334 pages. illustrated with 116 engravings and 10 colored plates. Cloth, 2.75, net. Lea Brothers & Co., New York and Philadelphia. 1905.

A most valuable work, especially with reference to the feces. It is intended as an aid to the physician in his daily efforts to reach conclusions. This book is calculated to really aid the man who will attempt to study the feces. The chapter on worms is a good one and the illustrations helpful. No discount at all on the part devoted to urinary examinations—it is excellent; but attention is directed to the less common treatise on the feces.

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### Announcement.

Of this issue we mail 5,000 extra copies with a view of increasing our subscription, see subscription blank, advertising page 3.



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**ORIGINAL CONTRIBUTIONS.**

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**Pulmonary Consumption.**

**Studies in Phthisiogenesis in Man and Clinical Data on  
Immunity.**

**Are Infections Primary or Secondary?**

By J. R. BRIGGS, M.D.,

DALLAS, TEXAS.

Medical Director to the Briggs Sanitarium, Dallas, Texas.

UPON the scientific answer to the above question and the solution of the problems inherent therein depend, in a great measure, the possibilities of the most effectual prophylactic measures heretofore suggested for the eradication of this dreadful scourage. In the light of recent research it now seems possible, and even probable, that our heretofore conceived views relative to the modes and period of infection leading to pulmonary consumption have been erroneous. A new and hitherto unrecognized chain of facts seem to indicate that the pulmonary form of the disease (with cavity formation) seldom, if ever, emanates from a primary source; but originates from old caseated areas in other organs of the body; the original tubercle formation of which may date back to infancy

or early childhood ; the etiological source being milk containing bacilli. As astounding as this may at first seem there is a mass of accurately recorded experimental facts, which amount almost to demonstration, that the most common source of pulmonary consumption is secondary—in contradistinction to the almost universally accepted theory of direct inhalation. I refer here to the painstaking and laborious work of von Behring during the last decade. The greater cause for surprise, however, at the newer teaching of Behring, in his departure from generally accepted views, is the still further assertion that the most usual source of infection in man is probably of a bovine character. Such lengthy strides as this, in the face of what the profession understood Koch to say in London, four years ago, is indeed most startling. Since Koch's more recent utterances on the differentiation of the human and bovine bacilli the profession seems to have regarded the question as settled ; it has, however, forgotten some things and gotten others mixed. Let it be remembered that Koch changed his views on this point ; he first announced the identity of tubercle bacilli from a human and bovine source ; then, several years subsequent, he disclaimed (in a certain sense) such views and seemed to doubt the identity of the germ of tuberculosis from these two sources. These recent views and experimental facts accord most harmoniously with the writer's convictions as to the causation of early pathological changes in the undeveloped human skeleton. Taking it for granted that all who have not accepted the work of Behring and his co-workers still hold to the inhalation theory as the most common source of infection I pass the latter by, except as to certain comparisons and references necessary to make my views understood. Before going into this subject proper let us all, and especially the older members of the profession, who are burdened with former teachings and preconceived theories, brush all these aside and assume a receptive attitude toward facts whenever found.

With this idea in mind let us ask : Is there any scientific explanation for the pathological skeleton alterations in childhood, aside from the old views of "heredity ?" Let us examine this point first as it has a most important bearing on the development of pulmonary consumption later in life. Why does the thorax of the so-called "predisposed subjects" grow long and round instead of broad and flat? Could any thing

short of actual pathological factors produce this anomalous chest conformation? Are not histological, or pathological, deviations essential in the formation of this abnormally distorted bony cage? And further, what is the etiological factor as a basis for such abnormal conditions? The answer is: The tubercle bacilli is the factor and the condition present "scrofula." When did infection primarily occur and what was the source? Let von Behring answer this in his sweeping new "principal" which he lays down as to the primary source or "chief cause" of consumption, viz: "*The milk fed to infants is the chief cause of consumption.*" It is impossible here to give the experiments leading this great man (the father of anti-diphtheritic serum) to this conclusion, which he persists in maintaining in the face of all opposing views. So impregnable is the foundation of his theory, upon which his experiments rest, that only time is necessary for full elucidation and, perhaps, positive demonstration of the correctness of his views.

All physicians are familiar with that condition in certain human beings which we designate as being "predisposed to consumption." The older physicians regarded this condition as "hereditary," but it now appears that the bony changes (greatly curved spine, stooped shoulders, round instead of flat wide chest, with abnormal elongation of the entire thorax, etc.), constitute the sequelæ of imperfect recovery from scrofula contracted in infancy. (As to the term "scrofula" Behring says: "It will be well to retain the name "scrofula" for those processes outside of the lung, which go on with cheesy degeneration. Only in that way can the connection between the histogenetically so important results of the earlier investigations be maintained). Without such early infections the bony changes present in these subjects would be impossible. But how do they occur? This can only be answered, so far, by analogous changes in other tissues of the body. This author says: "The analysis of the origin of pulmonary consumption must begin with the *primary* attack (primary regionally as well as chronologically) of the tubercle bacilli into the organism." Following this very important statement, which should be kept in mind, he further says: "As a rule, we can regard as points of primary infection polynuclear leukocytes in the blood and lymphatic receptive apparatus; next in order are the muscular elements in the walls of the smallest blood vessels. Endothelium and epithelium

may become carriers of tubercle bacilli through the action of polynuclear leukocytes which have wandered into these tissues." Applying these facts to the infections of childhood the bony changes in the skeleton become at once apparent. The older writers repudiated the doctrine of the "habitus" as a predisposing factor in pulmonary consumption, but at the same time claimed that this pathological distortion of the skeleton was "secondary." Here they doubtless builded better than they knew, if their words are taken literally. It is evident, however, that what they meant was that this change in the bones of the thorax occurred *after* the disease had invaded the lungs; while, in reality, it occurs at a much earlier date—perhaps in infancy. It is maintained now that the functional alterations in the vascular system (in early infections) find expression in marked instability of the dynamic equilibrium known as the "lymphatic constitution." Following such changes are certain parasitic diseases—eczema, etc. Here the so-called "predisposition" to consumption is really a defective overcoming of the infections in infancy and childhood. On this point Behring says:

"It seems to me that in the epidemiological origin of pulmonary consumption the infantile Tb. infection, followed by latent or manifest scrofula in the puerile period, is of great significance, so that we can formulate the following doctrine: 'An infantile tubercular infection predisposes to tubercular pulmonary consumption.' Under 'scrofula' I here include the alteration in the muscle of the blood vessels, caused by the Tb. infection, which finds the expression in the increased sensitiveness to tuberculin, and which in general is equivalent to 'scrofulous diathesis' of the older authors. The primary infection from the mouth or nose with tubercular virus derived from food or even from inhalation, in the small quantities that under ordinary conditions of life are concerned, is followed after the bacilli have entered the circulation, by alterations in the walls of the smallest vessels. These manifest themselves as follows: Microscopically, by a loosening of the vessel wall, between whose elements, shortly after the infection, tubercle bacilli can be found. These bacilli, brought here by the wandering cells, are set free on the destruction of the cells. In primary functional disturbances which can be recognized by the temperature curve and the heart action. In secondary tuberculin hypersensitiveness. Following mild infections the alterations in the vessel walls may retrogress with a suppression of the tubercle bacilli. Without exception, however, the hypersensitiveness to tuberculin remains, varying in degree and length of time according to the virulence of the infecting Tb. and



to their more or less locally limited action on the vascular system. After a moderately severe infection there is a formation of transparent, submiliary eruptions (nowadays our 'gray miliary tubercle'), especially about the smallest vessels of serous membranes. These eruptions are capable of becoming organized. In fact, when they have healed they form a tissue entirely identical with the tissue in which they originated."

From this and our knowledge of bone scrofula (its extreme chronicity) it becomes at once apparent that the so-called "habitus" is merely the expression of infection during infancy or early childhood and differs in no way from scrofula in other bones or organs. The possibility of the bacilli finding their way through the vascular and lymphatic system to the articulation of the ribs with the sternum and spine can not for a moment be questioned. Once tubercular virus finds its way to the smallest vessel adjacent to those articulations there is formed around them coaguable fluid followed by necrobiosis of the extravascular parts to which their periphery extends. Such changes may be only microscopical, as they doubtless are in such locations, but such minute pathological changes can, by their cicatricial contractions, during the period of bodily development, cause all the disfigurements of the so-called "predisposition subject." Of course, it is well known that not all such subjects are doomed to pulmonary consumption; it is also equally well known that many cases of pulmonary consumption in the adult present no such deformities previous to the stage of excavation of the lung tissues proper. These exceptions to the rule, so far as the writer can see, must find explanation in the following: Infections in infancy give expression to chest anomalies in adult life, while infections during advanced childhood, adolescence, middle and old age, present no such deformities prior to cavity formation.

Turning our attention now to other expressions of latency we find the lymph glands the most usual reservoirs of pent up virus. The explanation for this source of long years of retention, in a quiescent condition, is exceedingly simple, viz.: The germs are taken in food (milk from tuberculous cows or contaminated from a human source, tubercular uncooked meat, etc.), and owing to the absence, in infancy, of protective epithelium along the intestinal tract they readily find their way into the muscular wall of the intestine, from which they are taken up by the lymphatic system, thereby finding lodgment

in various organs of the body where they proliferate tubercle which may indurate and remain harmless during a life time. Where caseating areas involve blood vessels intima, and such cheesy disintegration find ingress to the circulation, acute miliary tuberculosis is inevitable. In the more chronic forms of scrofula of the soft tissues among the first changes found is "hypoplasia of the smooth muscle tissue;" following this is gradual wasting of the lymphatic apparatus and reduction of the follicular receptive apparatus, destruction of the lymph glands and secondary hypoplasia of other points of invasion, such as spleen, bone marrow cavities, serous surfaces of the body cavities and joints. The microscopical atrophic changes in the follicular apparatus stands in strong evidence as a causative factor in slender, delicate children who present no further evidence of disease than the undeveloped muscular system resulting from lack of sufficient nutrition. Such children, or as adults in after life, can not "grow fat" because of such injuries to the absorbents received in infancy. The submiliary eruptions which do not go on to caseation may be responsible for these minute destructive changes. The results of primary tubercular infection may, aside from anatomically demonstrable residues, also present only functional disturbances. The grosser changes, in which we find the lymph channels obstructed with involvement of the mediastinal and bronchial glands are the result of the primary foci received in infancy. The presence of such tubercular glands in a large per cent of autopsies of adults, dead of other diseases, demonstrate in a clear manner the spontaneous cure of these tubercular processes by an autoimmunizing process. This process indicates quite clearly the rational method of early cure, in infant infections, by "artificial immunity."

Although the mortality from pulmonary consumption is frightfully high, the marvel is that it is not many times what it is. When we understand that tuberculosis in cattle, where they are aggregated, is well nigh universal, and that milk is the principal food for children after the first year, the possibilities of infection is appalling. The fact is, too, that the mortality in infancy and early childhood is dreadful in the extreme. Let us look for a moment at the statistics of this scourge; and, in the light of recent research, seek the cause and its removal.

Behring, in his "Observations Concerning the Study of

Phthisiogenesis in Man and Animals," quotes a communication from Raw in which 300 cases of *tabes mesenterica* are cited, not one of which was found to have developed in a child who had been nursed exclusively at the breast, but all had been nourished on cows' milk. This is unanswerable by those who oppose the infancy period of infection by cows' milk. It is well known that the intestinal tract of infants, fed on cows' milk, is an incubator for a variety of bacteria and micrococci, Booker having demonstrated forty varieties found in cases of *cholera infantum*. That cows' milk is responsible for that large group of pathological changes, known to the laity as "summer complaint," which occurs in the second year of life, there is no doubt. Just here the special group of symptoms I wish to notice in this relation is the catarrhal swelling of the mucosa of both large and small bowel, followed by enlargement of the lymph follicles, loss of *large patches of protective epithelium* and in the more chronic forms of *bronchopneumonia* with "*caseation*." During twelve years of general practice I have seen several such cases with brain lesions and a few cases of meningitis, my own first born, age 15 months, having died in the throes of *opisthotonos*. The etiology of such cases is not yet satisfactory, but we are much nearer the solution of the causative conditions than ever before. It is now quite certain that the tubercle bacilli play an important rôle in many of these cases. Of 1,943 fatal cases of enteritis in children, between the ages of 6 and 18 months, Holt showed, by statistics, that only 3 per cent were exclusively breast fed. The hot weather, therefore, regarded as the main factor in intestinal disturbances of children, perhaps shares slightly, except in so far as a high temperature promotes fermentive changes in the milk fed such children; which does not occur in cool weather.

The bearing this all has on phthisiogenesis of infants is very great. If forty different varieties of micro-organisms find their way into the milk fed to infants by what methods are we to exclude tubercle bacilli? Especially when such milk is derived from tubercular cows or contaminated by a coughing human consumptive in the family. It has been shown that Pasteurization of milk does not solve the problem; it may, and doubtless does, destroy most if not all the germs present, but how are the bacterial toxins resulting from this sterilizing process to be eliminated? Here, and here only, do we strike the

mudsill of true prophylaxis against the present awful infantile mortality. Leaving aside the general mortality of children, during the first two years of life, from various contributing causes, let us now specifically regard the rôle played by the tubercle bacilli in the production of pulmonary consumption in the survivors in after years; or, in other words, glance at this intervening period of latency. This stage of latency could not be demonstrated and studied before the days of tuberculin, but we now have in this agent a positive diagnostic test. On the frequency of early infections Behring says: "*It is probable that in thickly populated countries practically every person is at some time or other infected with tuberculosis.*" To this startling statement he adds: "Not a single unexceptionable case has been brought forward to show that under the conditions of life usually present in civilized lands, an adult person has ever contracted pulmonary, bronchial, tracheal, or laryngeal tuberculosis without having *previously* been infected and thus rendered oversensitive to the tubercular poison." All the while, however, this author stoutly maintains that foods from tubercular sources do not infect *adults*, except in cases of *ulcers of the mucosa* as in typhoid, desentery, etc.; the protective character of the normal mucosa in adults and the antibacterial action of the digestive juices being sufficiently resistant to oppose such infections. In infants, however, where the mucosa is destitute of protective epithelium the bacilli make easy ingress to the lymph channels or circulation. In replying to the alleged frequency of inhalation infections he further says: "In order to explain the mode of origin of cheesy pneumonias and tubercular bronchopneumonias it is necessary at autopsy to regard most carefully the possible direct extension of the infection from cheesy mediastinal and bronchial glands to the bronchi and their branches before thinking of aerogenous or hematogenous pathogenesis." As evidence of the practically universal infection of man with tuberculosis Naegeli, of Zurich, working under Ribbert, is quoted by Behring as saying: He "was unable to discover at autopsy a *single body* over 30 years of age in which there were not some signs of the occurrence of a tubercular infection. Between the ages of 18 and 30 years were 96 per cent; between the ages of 14 and 18 years, 50 per cent; between the ages of 5 and 14 years, 33 per cent, and between the ages of 1 and 5 years, 17 per cent, which showed the presence of tubercular



lesions. In the body of infants *under one year*, on the other hand, definite tubercular signs were invariably absent." This author claims that as "astonishing" as these "careful anatomical investigations" may appear "they have been verified by reports from other pathological anatomists." Quoting further from Behring's Cassel Lecture the following paragraphs are extracted.

"The most instructive evidence to confirm the general truth of Naegeli's figures is furnished by the results of investigations made by the Austrian army surgeon, Dr. Franz, on soldiers of two regiments of infantry. In order to avoid injuring the health of the individuals tested, Franz used only very small doses of tuberculin, 1 to 3 mg., which, in case the injection was repeated, was increased to 5 mg. In spite of this, and in spite of the fact that the soldiers represented the healthiest individuals of the population, he found in one regiment in the first year of service (1901) 61 per cent, and in the second year of service 68 per cent of tubercularly infected cases. Franz adds to his report, which at present I have only in manuscript, that when he employed the dose originally recommended by Koch, 1 cg., his percentage for the twenty-first year of life approached Naegeli's very closely—96 per cent.

"On the other hand, the Hungarian investigator, Dr. Nikolaus Berend, has not obtained a single positive tuberculin reaction in very young children, in spite of the fact that among these were some very feeble individuals, and children of parents manifestly tubercular; and further, despite doses as high as 1 cg. We see then that herein also the statistics coincide with Naegeli's post-mortem statistics.

"Another proof that human tuberculosis is much more widely disseminated than was heretofore believed is furnished us by a diagnostic method devised by the French clinician Andre Jousset, namely, 'inoscopy.' By means of inoscopy we can examine microscopically, for tubercle bacilli, coagulable inflammatory exudates and the blood of suspected cases of tuberculosis, even though only very few bacilli are distributed in large amounts of fluid. And we examine these fluids directly, not indirectly, by means of cultures. As a result of the coagulation the bacilli are fixed by the fibrin, from which they are freed by dissolving the fibrin with an appropriate digesting fluid. The bacilli are then separated by centrifuge and can be examined directly in microscopical preparations. With the aid of this very valuable diagnostic method we are enabled to demonstrate the tubercular origin of almost all serous pleurisies, of many exudative peritonitis, of accumulations of fluid in the peritoneal cavity of alcoholic individuals with liver cirrhosis, of joint inflammations, of exudative meningitis, of many

cases of heart disease and other classes of symptomatic affections, where formerly most physicians did not think of the possibility of these affections being tubercular."

In the light of these discoveries, as astonishing as they are, we can but recognize them in all our prophylactic measures against pulmonary consumption. Realizing the futility of preventing milk contamination, at least until further advance is made in milk hygiene, let us look at the possibilities of curing, by immunization, those children already infected; thus preventing secondary lung infections in after years. Especially is this a serious question in all children who present manifest symptoms in glands, bones and joints. Although some good work has been done in this country along this line, the profession does not yet seem ready to accept it; just why they do not indorse the work of specific treatment with bacilli toxins can only be accounted for on the ground that they, having been busy men in other lines, have not given the subject due consideration. It is at least to be hoped that a better knowledge of the pathological lesions in latency and their grave consequences may be more fully recognized than at present.

While we have always recognized the existence of that quality or power possessed by certain individuals which we designate as "immunity," or "resistance," against contagious and infectious diseases, it is only very recently that certain experiments in biology has demonstrated some of the intricate laws of this heretofore unknown and intangible problem. For recent studies on "immune sera, hemolysins, cytotoxins and precipitins," see Wasserman, a new translation by Bolduan, which gives a clear elucidation of the chemistry and philosophy of the subject. This line of research offers more hope for great achievements in scientific medicine than any other advance in the entire domain of medical science; from the fact that it goes back to the *origin and minutia of cell changes and influence*. All this in a general way. It is our province here, however, to look to a specific agent, the therapeutic action of which is well worked out, viz., the toxins of tubercle bacilli in the disintegration of live tubercle. To give this point authoritative force I prefer to again quote from Behring, as follows:

"Koch's tuberculin is a water-soluble tubercular toxin, given off from the bodies of the tubercle bacilli to the culture medium, and

concentrated together with glycerin. Injected either subcutaneously or intravenously it causes no reaction in persons free from tubercular infection. On the other hand, it is one of the strongest poisons for those who are under the influence of such infection. Even before the infection has led to clearly recognizable lesions, and long before there are any symptoms of tubercular disease, and even, if the most careful physical examination fails to discover a suspicion of tuberculosis during the entire lifetime of the individual, his peculiar susceptibility to this tuberculin injection shows that somewhere in his tissues or body fluids tubercle bacilli are producing their peculiar changes.

"The nature of these changes is becoming somewhat clear to us since there have been discovered in the extravascular blood of tubercularly infected men and animals coagulation and agglutination phenomena which are entirely absent in the blood of non-infected individuals. It appears that the activities of the tubercle bacilli in the body of the host excite the production of a soluble *antibody*. When this antibody comes into contact with the water-soluble substances derived from the tubercle bacilli, Koch's, tuberculin, it is transformed into an insoluble body. According to my own researches I believe it probably that this antibody is formed by the smallest arterioles in the neighborhood of the infected area. The extent of the agglutination phenomena varies according to the amount of antibody and of the tuberculin with which it comes into contact. This manifests itself clinically, by the degree of fever, and anatomically, by intravascular coagulations. The latter, in some cases may lead to exudations or to the escape of blood from the pathologically altered vessels. As a result of the tubercular poisoning, we would then have, at autopsy, the typical picture of a tuberculin reaction.

"Tuberculin, in its action as a blood poison for an individual infected with tuberculosis, behaves like many other infectious poisons. Very small fractions of the amount sufficient to threaten life cause a distinct reaction. This is manifested by a rise of temperature preceded by a sharp fall. I know, through personal experience, of a case of human tuberculosis in which more than a hundred times the usual diagnostic dose of tuberculin was administered. But aside from several days of high fever and a considerable feeling of illness, it had no damaging influence on the patient's general condition. Koch, the discoverer of tuberculin, once took a strong dose of tubercular poison in the form of dead tubercle bacilli and became very ill. In his case probably a hundredth of the amount would have sufficed to cause transient temperature changes and thus have demonstrated that he also had once been infected with tubercle bacilli. Ten years ago I myself reacted to a dose of 4 mg. with fever and a pronounced feeling of illness which confined me to my bed for several days in San Reno. Therefore, I have no doubt about the tubercular infection of my body."

The greatest opposition I meet with daily, in my exclusive line of tuberculosis work, is the downright skepticism of physicians to the specific action of the culture products of the tubercle bacilli and their curative value in early stage cases of circumscribed pulmonary consumption. That many lives have been saved with the old original tuberculin treatment, with all its impurities, the ablest physicians in the world attest. That the impurities contained in crude tuberculin, in fact in all the tuberculins, was just causes for their unpopularity must be admitted; yet, the fact remains, nevertheless, that the bodies of tubercle bacilli contain a toxin capable of marked curative action in tuberculosis.

Looking now to the clinical results coming from the last step made in perfecting a specific toxin for the cure of tuberculosis let it be emphasized that in tuberculosis, as in syphilis, no therapeutic agent is expected to directly influence necrosed tissues; and, in the former, as in the latter disease, curative results can only come of treating vascularized tissues. It is true that in the treatment of pulmonary consumption, where the destructive processes can be arrested, by removal of the more recently proliferated tubercle, with an improved metabolism, reparation is possible in all the destructive areas by the usual induration and fibroid processes.

The isolation of the pure toxins from tubercle bacilli fell to the honor of our distinguished American citizen, Dr. Karl von Ruck. During the last five years, in the course of rather large exclusive tuberculosis work, I have relied solely, as a curative therapeutic agent, upon his "watery extract of tubercle bacilli." That this product has a direct specific action on all live tuberculous processes there is not the shadow of a doubt. It is only of late, however, in the light of recent research, that the philosophy of such cures and the conferring of a stronger relative immunity, has become apparent.

Let it be understood, once for all, that in the treatment of tuberculosis we do not need to introduce into the patient's body an "antitoxin," as has been expressed in the various serums applauded for this purpose; we do not want to neutralize the toxins in cases of this disease; in fact, what we need is *more toxins* than are found present. The toxins derived from solution of the tuberculosis germ are highly curative, in that they stimulate the production of antibodies. It must be remembered that all infections occur by reason of a



weak blood resistance. Immunity stands in direct ratio to the presence in the body fluids of an "immune body." Without induced affinity of the alexins for the bacteria to be killed, the latter go on proliferating until the wide dissemination of tubercle, with its caseating and toxic impress, destroys the life of the consumptive. By supplementing the toxins *in situ*, with those from cultures, the immune or antibody is constructed in the blood by certain intricate chemical laws. Recent research demonstrate quite conclusively just how these laws may be utilized for great good. The fact is this line was worked out clinically before the nature of the process was understood. It has frequently been alleged that the specific cure of tuberculosis has never been worked out to practical ends; even Bridge, in his late book on tuberculosis, attempts to discredit this great work, his experience resting, however, largely on the use of "horse serum." Of course, no man of any scientific attainments will attempt to defend the serum treatment in tuberculosis. The writer gave all these serums a fair trial for two years and must say they are *absolutely worthless* in treating tuberculosis. Some very good physicians still have such serums and the "direct method" of injecting the pure toxins into the patient direct, very much mixed; having failed in the former they condemn the latter on general principles.

The writer has treated about 1000 patients with tuberculosis, for varying periods of time, over 300 of whom took the full course. Most of these patients were rather advanced cases of pulmonary tuberculosis, 90 per cent having fever on reaching the sanitarium, with cough, moderate or severe, loss of weight, night sweats, loss of appetite and strength, shortness of breath on exercise, and 98 per cent softening and excavation as evidenced by the presence of tubercle bacilli in the sputum. The results of this specific treatment in these 300 cases show, after the lapse of years, about 60 per cent of permanent recoveries.

The method of cure is by the production of immunity the rationale of which, together with technic, dosage, management in the fever period, feeding, rest, exercise and general control, must be the subject for a separate paper.

[Sanitarium Place.]

## The Baby Incubators on the "Pike."

A Study of the Care of Premature Infants in Incubator  
Hospitals Erected for Show Purposes.

By JOHN ZAHORSKY, M.D.,

ST. LOUIS, MO.

*(Continued from page 275, May Number).*

### HYPOTHERMIA.

A rectal temperature below  $36^{\circ}\text{C}$ . ( $96.8^{\circ}\text{F}$ .) should be considered an indication for employing warming measures. It is not sufficient to raise the temperature of the incubator only; it is necessary to inquire into the cause of the reduction in temperature. In the first place, there is the post-natal hypothermia which resulted from too great exposure after birth. A fall in temperature will also occur even if the infant is placed at once in the incubator. The observation of Perrett is instructive in this connection :

A premature infant, weight at birth, 950 grams, had a rectal temperature of  $36.1^{\circ}\text{C}$ . It was immediately placed in an incubator at  $32^{\circ}\text{C}$ . The temperature taken every two hours thereafter gave these results—35.6, 34.2, 34, 35.2, 35.9,  $36.9^{\circ}\text{C}$ . In other words, the temperature dropped to  $34^{\circ}\text{C}$ . in spite of the incubator; then, after six hours, it gradually rose to normal. Even Lepine, more than forty years ago, asserted that the temperature of the premature infant at the room temperature may drop to  $33^{\circ}\text{C}$ ., but, as Budin remarks, the return to normal is not so easy as he indicated.

Evaporation and radiation from the translucent congested skin, causes a rapid loss of heat, and the incubator is designed to prevent this. It is questionable, however, if the incubator should be used to supply heat to the infant. Warm air is a slow method of heating the infant. For the initial drop in temperature the warm bath should be resorted to. When the infant's temperature is normal it must be thoroughly dried and placed at once in the incubator. These warm baths can be frequently repeated.

Repeated attacks of cyanosis usually result in a fall of the

rectal temperature. Warm baths and careful attention to diet are necessary.

Very serious is the reduction in temperature following attacks of indigestion. When there are symptoms of colic, green, undigested stools, some of which contain mucus, the question of treatment offers many problems. Blair has been very successful in these cases by heating the incubator up to 96 to 98° and keeping the rectal temperature slightly above normal. In addition he employs bathing. Personally, I feel that the bathing and careful dieting without the incubator being so high will be found equally successful. In private practice it not infrequently happens that after the premature infant is a few days old, and has been overfed, dyspeptic symptoms appear and the infant has hypothermia. The careful treatment of the indigestion and the employment of warm baths are the rational indications and may be absolutely necessary.

Here again I must insist that attention to clothing should be given in just such cases. There is no better way to stop heat loss from a radiating body than to envelop it in non-conducting (woolen) clothing or blankets. Frequently, a reduction in temperature may be checked by enveloping the infant in a soft woolen blanket. Even its head may be thus enveloped and radiation checked.

Our experience shows that infants weighing even less than 1000 grams should be allowed a difference of 4° between their own and the atmospheric temperature. When, even with additional clothing, hypothermia ensues, attention to the food supply and nutrition is necessary.

Finally, a sudden hypothermia may be caused by some infectious process and rapidly end fatally. Altogether, the prompt and careful management of hypothermia is one of the problems of premature infants.

#### FEVER.

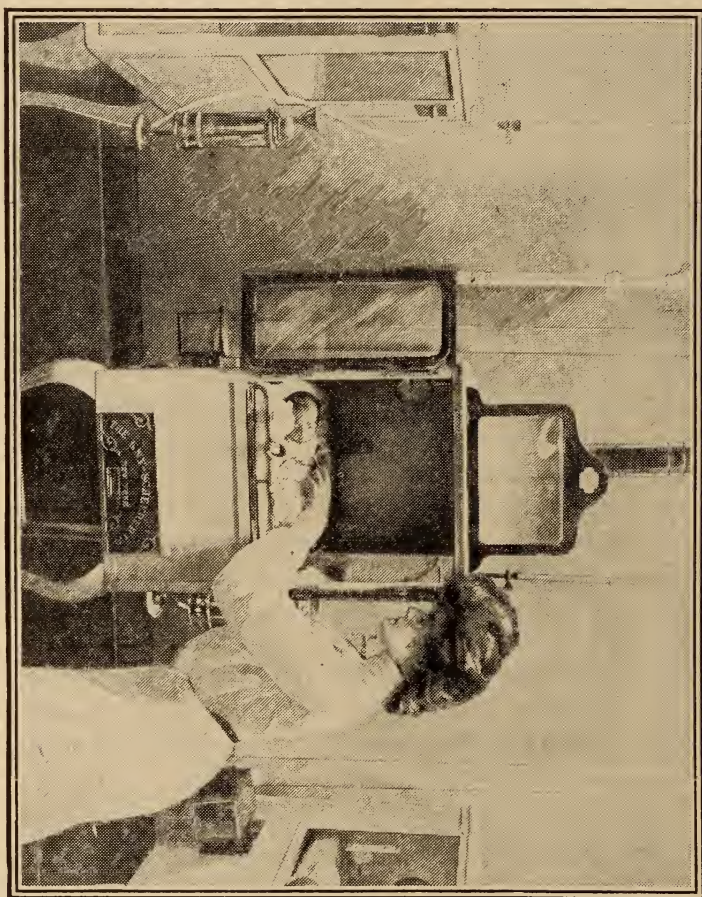
Fever results from an insufficient water supply, an overheated incubator or some infection. Occasionally, constipation seems to be the only cause present. It is remarkable how the temperature of the premature infant fluctuates, being disturbed by slight causes. An elevation of temperature up to 38°C. (100.4°F.) has no significance. A temperature higher than this demands attention. Fever was a very common condition of the infants of the First Series. As I have incomplete



data, a report of the cases would be unprofitable. In the Second Series the only two infants having a temperature of more than  $102^{\circ}$  were infected.

The treatment of fever in the premature infant does not differ from that of older infants. As a rule, it is best to remove the infants from the incubator if the temperature rises above  $102^{\circ}$ . Often this is all that is necessary, besides the treatment directed to the underlying pathological condition.

Fig. 9.—Feeding the Infant, the Doors of the Incubator Being Open.



#### INDIGESTION.

Under this head may be grouped a class of disturbances which are brought about by functional derangement of digestion. It ranks with cyanosis as one of the disorders which



causes great anxiety to the attendants. The symptoms do not differ from those in older infants and yet a few symptoms are more pronounced. The most usual cause of indigestion is overfeeding. I have already, in the Sections on Feeding, referred to this cause. If, during the first few days, the milk is given in too large quantities, or later, when the quantity of food given represents more than 130 calories (energy quotient), symptoms of indigestion are liable to appear. In the first week severe indigestion is likely to be fatal; in fact, the impossibility of digesting a sufficient quantity of milk is probably the principal cause of death in infants weighing less than 1000 grams.



FIG. 10.—The Incubator Room with the Glass Partition which Separated the Incubators from the Visitors.

Another cause of indigestion is insufficient ventilation. In foundling homes, as Routh, long ago pointed out, bad air gives rise to severe dyspeptic symptoms. Premature infants,

also, will lose their appetite, and digest food poorly, when the air is impure. Not only must the most rigid rules for ventilation be enforced as regards the incubator, but the room in which the incubator stands must be thoroughly ventilated. When an infant is fed, the door of the incubator is opened for a short time and the cooler air from the room flows rapidly into the incubator and displaces the warm air (Fig. 9). In a show incubator, therefore, it will not do to have the incubators stand in the same room with the visitors. The incubator room must be tightly separated from the visiting room by glass partitions. (Fig. 10).

How far mild infections contribute to indigestion is uncertain as it is often impossible to distinguish digestive disturbances arising from overfeeding or a primary infection.

By what symptoms do we recognize the onset of digestive disturbances? As these infants are usually constipated it will not be sufficient to depend on inspection of the stools except as a corroborative sign. The diagnosis must be tentatively made without seeing the passage.

The symptoms which will direct our attention to the digestion are as follows: Somnolence, anorexia, loss in weight, drop in the rectal temperature, cold extremities and cyanosis. Furthermore, the infant may have repeated attacks of crying and other indications of colic. Vomiting also is very significant, but by no means a very instructive symptom. That form of indigestion which induces colic seems to be less serious, although the colicky attacks may be followed by stupor and death.

Several problems suggest themselves in this connection and it may be instructive to inquire into some of them.

As to the quantity of food sufficient has already been told in the Section on Feeding. Another question that demands consideration is the relation of the incubator and the rectal temperature to the powers of digestion?

I again make two divisions—First Series and Second Series, the first under the management of my predecessor. For want of space I can give only a few histories.

#### FIRST SERIES.

CASE 30.—Louise, weight 1360 grams, gestation 7 months. Admitted a few hours after birth with a rectal temperature of  $101.4^{\circ}$ . First day, food 60 calories energy quotient; several

stools in the evening, temperature above  $101^{\circ}$ . Second day, gavage several times, part of the first day, food was given having an energy quotient of about 80 calories, but stools were frequent, several attacks of cyanosis appeared and food was reduced to 20 calories. The temperature remained high (Chart 18). Several baths were given. The stools improved when several enemata were employed. The bowel movements remained free and contained undigested food. The third day the food was reduced too much, only about 12 cc. being given in eighteen hours. Death from repeated attacks of cyanosis.

As the quantity of food was too large the first day it is difficult to state whether the indigestion was caused by this or by the high incubator temperature.

The same remarks may apply to Earnest (Case 26), an infant of about the same weight as the preceding, who was given a mixed feeding, was given more than 6 ounces of food in the first eighteen hours and when he would not take it gavage was employed. There was vomiting, great crying with pain and on the third day several attacks of convulsions, and death. As I have not the complete data at hand, the cause of all this is not clear. The temperature was over  $101^{\circ}$  all the time.

In the case of Warden (Case 14), who soon after admission had a temperature of  $104^{\circ}$ , the vomiting of mucus suggested that mucus is not always the result of cold, but rather to overfeeding and high temperature of the incubator.

Celeste (Case 15), gestation 7 months, weight 1460 grams, was placed in the incubator at  $94^{\circ}$ , when the rectal temperature rose to  $102^{\circ}$ , it was reduced to  $90^{\circ}$ . On the following four days the rectal temperature was about normal (97 to  $99.6^{\circ}$ ). A few hours after admission with a temperature of  $102^{\circ}$ , she vomited several times mucus and curds. Otherwise no dyspeptic symptoms appeared. Water was administered freely. Food given was mother's milk diluted 1 in 4 parts—and the baby did not receive sufficient food. Energy quotient third day 25 calories. She died suddenly on the fifth day. I place this case among the others to illustrate how great care will avoid indigestion, but the infant may die suddenly from exhaustion.

Two more cases of the First Series will be noticed:

Mildred (Case 35, see Chart 5), gestation 7 months, had fever ( $101$  to  $104.4^{\circ}$ ) during the first few days of life. Weight

at birth 1930 grams. She was fed on mother's milk. Her alimentation daily was as follows: In calories (E. Q.) second day, 20; third day, 30; fourth day, 35; fifth day, 50.

It will be seen that during this time she had fever, probably from the incubator being too high ( $96^{\circ}$ ). She received no excess of food, and yet she developed marked indigestion. She had foamy stools, with curds and the stools did not become yellowish, but remained green. The stools also contained mucus.

I will have occasion to refer to this case again under the heading, Inanition. Altogether, the high temperature inhibited the digestion.

In the case of Leonore (Case 21), though a smaller infant, the rectal temperature did not go over  $100^{\circ}$ , and no dyspeptic symptoms appeared in the first week.

#### SECOND SERIES.

Case from the Second Series need not here be repeated, suffice it to state that a subnormal temperature (below  $97^{\circ}$ ) also inhibits the digestive functions as it appears from the records of several babies. I must conclude, therefore, that maintaining the temperature of the incubator too high or too low predisposes to indigestion.

The treatment of indigestion resolves itself into measures that evacuate the bowels and careful feeding. A dose of castor oil should be given and the quantity of food reduced. As a rule, it is safer to lengthen the intervals and leave the quantity the same when the stomach is not very irritable, while stopping the food altogether for a few hours may be necessary, if there is not much vomititing. Yet, in very small infants the stopping of the feeding is dangerous, as cyanosis may appear.

*In all cases of indigestion the food should be reduced to an amount which represents an energy quotient of 70 to 80 calories and should be maintained there until dyspeptic symptoms disappear.* In larger infants (more than 1800 grams) it is often advisable to reduce the food to a quantity that represents 60 calories (E. Q.)

I used various methods in order to increase the digestion. Budin has had remarkable results with pepsin, and in a few cases pepsin in the form of Fairchild's essence of pepsin was administered. In these cases I could not find the striking re-



sults which Budin obtained, yet in those cases characterized by colic, or evidences of proteid indigestion it should be given.

Further observations on the subject of indigestion will be given under the headings, Loss in Weight, and Inanition.

#### ANOREXIA.

Not infrequently premature infants become somnolent and show no disposition to nurse; occasionally a repugnance to food is manifested. These are symptoms of overfeeding, hypothermia or infection. A dose of castor oil should be given, less food administered, if too much has been given, and gavage employed. In several cases I used a physiological salt solution, *per os*. This supplies water and, after a few doses, induces a thirst, which causes the infant to drink its milk eagerly.

In fact, the stimulation of the appetite is very necessary in many cases. Since Pawlow found meat extracts as powerful stimulants of the digestive juices, the employment of meat broths seems rational. In fact, we used small doses of mutton broth in many cases (see Inanition). Wine of cod liver oil (Merck) was also employed as a digestive stimulant.

#### CONSTIPATION.

Several authorities draw attention to the fact that premature infants are subject to constipation. The muscular coat of the bowel either lacks the power, or the mucous membrane is less irritable. At any rate the evacuation of the bowels needs daily attention. As a rule, an enema of salt solution was employed. In several cases olive oil in half teaspoonful doses twice daily was used but not always successfully. Castor oil can be given, but has the well-known disadvantage of constipating afterward. All of our infants suffered from constipation when the diet was not excessive in quantity.

### VII.

#### THE NUTRITION.

Several disorders may be properly classified under nutritive disturbances. At the onset, it may be profitable to observe normal and abnormal variations in the weight. All infants lose weight immediately after birth, but premature infants

in incubators, especially, may lose, relatively, more than the infant at term. Thus, in the Second Series, the loss in weight is represented in Table 23.

Loss in Weight (Grams), First Five Days.

Name.	2d Day.	3d Day.	4th Day.	5th Day.
John H.,	75	67	00	00
Pearl,	64	79	28	22
Omega,	25	10	29	7
Margaret,	57	86	79	27
St. Louis,	29	92	36	7

TABLE 23.

This table illustrates the loss in weight of five of our infants who ultimately did very well. When it is recalled that the initial loss of the infant born at term is about 11 per cent of its body weight (Holt), simple calculation shows at once that these infants in the first five days lost as follows: John H. 9 per cent, Pearl 11 per cent, Omega 4 per cent, Margaret 14 per cent, St. Louis 12 per cent; the loss, therefore, was not more than the average infant at term, but it must be remembered that these infants are fed regularly after the first few hours, while the infant born at term gets very little until about the third day. Then this does not represent the total initial loss as most of our babies lost for one or two more weeks. The total initial loss was as follows: John H. had the lowest weight on the fifteenth day (Table 16), initial loss 13 per cent; Bernice, lowest weight on the twenty-first day, initial loss 3 per cent; Pearl, lowest weight on the ninth day, initial loss 11 per cent; Omega, lowest weight on the fourteenth day, initial loss 5 per cent; Margaret, lowest weight on the twelfth day, initial loss 12 per cent; St. Louis, lowest weight on the eighteenth day, initial loss 12 per cent.

All of these infants, who lost more than 10 per cent suffered from indigestion, hence their loss should not be compared with those of healthy infants. There should be no extreme loss in weight in premature infants if the feeding and water supply is properly adjusted. No doubt the highly-heated incubator favors loss of weight by evaporation. Un-

fortunately, the records of the First Series on this point are incomplete. I, therefore, must refer to one little infant treated recently in private practice, who was kept at a warm room-temperature (75 to 78°F.) but clad warmly and a hot-water bottle usually applied to the body. The weight at birth was 1820 grams. The infant was put to the breast every two hours soon after birth and in addition pasteurized whey was given in quantities of 4 to 8 cc. every hour and a half. The lowest weight on the third day was 1760 grams. Hence, the initial loss was less than 4 per cent.

It remains to examine a few fatal cases :

C. G., weight on arrival at the incubator 910 grams, second day loss 84 grams, third day loss 30 grams, fourth day loss 58 grams. The initial loss was 19 per cent.

E. K., gestation 7 monts, weight on arrival 1930 grams, second day loss 67 grams, third day loss 38 grams, not weighed on day of death.

W. K., gestation 25 weeks, weight 1100 grams, second day loss 31 grams, third day loss 76 grams, total loss about 11 per cent. Slight edema occurred on the second day.

These cases demonstrate that, as a rule, infants who die in a few days lose weight relatively more rapid than those who survive. This again accentuates the importance of prompt and careful alimentation. The prevention of a rapid loss in weight is one of the difficult problems in the care of premature infants.

Persistent loss or stationary weight characterize inanition, malnutrition and marasmus.

In studying the gain in weight, it is obvious from the cases reported (Section IV) that one gram daily is a satisfactory increment of growth. A sudden gain of weight often signifies the appearance of edema. A rapid rise in weight in a very sick baby is often the precursor of death.

*(To be Continued.)*

## The Therapeutic Value of Lecithin in Infant Feeding.

By WALDEMAR KOCH.

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A REVIEW of the recent commercial literature regarding the therapeutic use of lecithin again illustrates two well-established observations of empirical medicine. Namely, first: The less we know of the physiological action of a substance the greater is the number of diseases that it is supposed to benefit. Second: The less we know of a disease the greater the number of remedies recommended for its cure. Lecithin has been recommended on the one hand for the cure of almost everything—anemia, tuberculosis, and even old age; and, on the other hand, has been added to the large list of substances supposed to cure nervous debility. It becomes a very thankless task, therefore, to rescue such a substance, which has fallen into disrepute on account of its excessive usefulness and give it a place justified by scientific investigation.

Before considering the physiological rôle of lecithin it may be well to explain a little more in detail its relation to the chemical transformations taking place in the cell. Lecithin is a complex compound containing as radicles fatty acids, glycerin, phosphoric acid and a nitrogen complex (cholin). There exist also a number of substances closely related to lecithin, as for instance, kephalin; but too little is at present known about their chemistry to consider them here. It may be well to call attention at this point to the usual text-book description of lecithin as a phosphorized fat. This term should be abandoned as it may be misleading, for although lecithin contains fatty acids and glycerin and is soluble in ether, it behaves toward water much more like a proteid by going into colloidal solution. It is in fact its ability to occur in a completely emulsified finely divided colloidal state that gives to lecithin its power to continually take an intimate part in the



reactions of the living cell, and absolutely distinguishes it from the inert fat droplets deposited in the cell which are only drawn upon as reserve food material. The presence of lecithin in every living cell so far as investigated, even when fats are altogether absent, and in all other stored food materials, still further emphasizes the importance of this interesting substance.

The relations of the various radicles in lecithin to cell metabolism have as yet been imperfectly studied. The fatty acids of lecithin, especially those of the oleic acid type are undoubtedly of more importance to the cell than as a source of energy. The cholin radicle has been shown to play an important part in reactions of degeneration, especially of the nervous system. Thus, Mott and Halliburton have demonstrated its presence in the blood and cerebrospinal fluid during the seizures of general paralysis. With reference to the phosphoric acid radicle may be mentioned the excellent work of Maxwell, who called attention to the fact that the seed during germination increases its store of lecithin at the expense of inorganic phosphates. He also pointed out that during the development of the young chick in the egg the large amount of stored lecithin is drawn upon to furnish phosphorus for the formation of bone. When we consider the intimate relations of organic and inorganic matter so strikingly shown in the anatomical structure of bone it is not surprising that the organism should make use of such a substance as lecithin for the transfer of such an important element as phosphorus from the inorganic form through an organic combination back to the inorganic form again. In such fishes as the salmon a similar process is probably used for building up the complex nuclear material of the sperm.

It is in recognition of the importance of the element phosphorus that medical practice has long been in the habit of prescribing its use. There has lately been a tendency to substitute for the older forms such as phosphites, hypophosphites, etc., phosphorus in the organically combined form, as for instances, glycono-phosphates, nucleins and, finally, lecithin itself. As there can be little doubt that lecithin is of extreme importance to the cell, it is fortunate that our ordinary foods supply us with considerable amounts of this substance. As it is, moreover, not destroyed by cooking and can be just as readily assimilated when in combined form as when free it be-

comes of interest to see how much of this substance enters our system daily. A glance at the following table gives the approximate amount of lecithin found in our ordinary foods.

QUANTITIES OF LECITHIN IN OUR COMMON FOODS.

1 POUND=450 GRAMS.

	Grams.	Ounces.	Remarks.
1 lb. Calves' brains,	20 to 25	0.6 to 0.8	1/3 kephalin
1 lb. Shad roe (Caviar),	18 to 20	0.6 to 0.7	
12 eggs,	12 to 16	0.4 to 0.6	
1 lb. Calves' liver,	12 to 15	0.4 to 0.5	1/2 kephalin
1 lb. Sweetbreads,	12 to 15	0.4 to 0.5	3/5 kephalin
1 lb. Lamb fries,	10 to 12	0.3 to 0.4	3/5 kephalin
1 lb. Meat (beef),	5 to 7	0.2 to 0.3	1/3 kephalin
1 lb. Peas or beans,	5 to 7	0.2 to 0.3	
1 lb. Salmon,	5 to 6	0.2	1/3 kephalin
1 lb. Bread,	0.5 to 1	0.02 to 0.04	
1 lb. Vegetables,	0.3 to 0.5	0.01 to 0.02	
1 Pint Milk (human),	0.4	0.01	
1 Pint Milk (bovine),	0.3	0.01	
1 lb. Mushrooms,	0.2	0.007	

According to the nature of the diet, therefore, the amount of lecithin eaten daily will be seen to vary between 5 to 15 gms. (1/6 to 1/2 ounce) or more. A larger amount than 1/2 ounce, however, could hardly be eaten without causing the discomfort usually experienced after what is popularly known as a rich diet. In view of these figures the usual daily quantity (three doses of 1 grain each, total 0.2 gram) recommended by the promoters of the clinical application of lecithin seems amusingly small. In some of the above foods (brain, liver and meat) a part of the lecithin is replaced by kephalin, the food value of which has not yet been determined.

In consideration, however, of the fact that kephalin is a decomposition product of lecithin it is probably somewhat less. Nevertheless, if it were desired to administer lecithin to an adult it would be easily possible to select a diet containing thirty to eighty times as much lecithin as would ordinarily be given in any of the commercial forms of the pure preparation and at a very much less expense. Besides, pure lecithin has anything but a pleasant taste, while the foods rich in this substance are among those most highly prized for their flavor. For the clinical administration of lecithin to the adult in the

pure form there is at present no good scientific basis. Any good nurse or housewife in feeding a convalescent would naturally select a diet already rich in this substance.

With the child, however, especially the newly-born the case is slightly different. The chemical study of lecithin above referred to already indicates its importance during growth, an observation which is directly confirmed by physiological experiment. Thus, Danielewsky, Desgrey and Zaky, Billon and Stassono, and, finally, S. Hatai, the latter using my preparations, have conclusively demonstrated that animals develop more and better on a diet containing lecithin. As the young child is altogether dependent on milk for its supply of lecithin this point becomes of especial importance in artificial feeding.

Now, although bovine milk contains about the same amount of lecithin as human milk,<sup>1</sup> the dilution which is necessary in order to make bovine milk available for the child, reduces the comparatively small amount of lecithin from one-third to one-tenth. Indeed, following the method of dilution suggested by Holt, the dilution is greatest during earliest infancy when most growth takes place and lecithin is most needed. The addition of lecithin in this case seems, therefore, justified and should receive a thorough trial. The fact that infants have grown and grown well without this addition is no argument against its use. May it not be possible that the well-known difference in the result of feeding bovine instead of human milk is not altogether due to the difference in the proteids, as generally supposed, but partly due to the lack of the proper quantity of lecithin? Holt calls especial attention to the fact that improper feeding in infancy very often does not show its effect until later in life.

The addition of lecithin in the form of yolk of egg has indeed been occasionally used in modifying bovine milk for infant feeding. On account of the undesirability, in this particular case, of the proteid present in the yolk it would be better to add pure lecithin in the form of an emulsion.

Dr. John Zahorsky, of St. Louis, has kindly consented to undertake clinical observations with such an emulsion, especially in cases of rickets. The results we hope to report at a later date.

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<sup>1</sup>The statement of Hammarsten that human milk contains more I have not been able to confirm.

In conclusion, we see that a selection of foods rich in lecithin will undoubtedly prove a valuable dietetic measure in certain diseases. The use of the pure preparation recommended by manufacturers can be of only limited value, even if the present prohibitive price should be reduced. With regard to the use here suggested for the pure preparation to modify bovine milk for infant feeding only clinical experience can decide as to its usefulness.

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## A Peculiar Cystoma.

By WILLIAM S. DEUTSCH, M.D.,

ST. LOUIS, MO.

Senior Assistant Surgical Clinic, Medical Department, Washington University;  
Associate Surgeon to the Jewish Hospital.

THE case of Post Rectal Cystoma, which I report this evening, I had charge of in the Washington University Hospital for Professor Tuholske, before and after operation. Mrs. C. was sent to the Clinic by Dr. Wm. L. Mosby, of Bardwell, Ky. and gave the following history: Father died of heart disease at the age of 63 years; mother died of phthisis at the age of 44 years. Four brothers and one sister died in childhood of causes unknown to the patient. One sister living and healthy. One brother living and healthy, and one has phthisis. No history of tumor or cancer in the family. The patient was delicate during her early years, having had most of the diseases of childhood. She began menstruating at the age of 16 years and has continued to do so regularly and without trouble. At the age of 20 years, while walking on a log she fell astride of same and suffered for a few days with pain in the perineal region, but which apparently gave her no further trouble. She was married at the age of 31 years, and eleven months later her physician had to perform embryotomy to deliver the child on account of the obstructed canal. She passed through the puerperal state normally, and with the exception of a very painful and difficult defecation seemed no worse for her confinement.

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*Read before the Medical Society of City Hospital Alumni,  
January 19, 1905.*



*Physical Examination.*—The patient is a brunette, height, 5 feet 8 inches; weight, 180 pounds, with normal chest and abdomen, quite an amount of adipose tissue. Temperature, pulse and respiration normal. Urine 1019, negative. Red blood cells 4,000,000, white cells 4000. Hemaglobin 75 per cent. A vaginal examination, made extremely difficult on account of the tumor crowding up the posterior wall of the vagina, revealed the uterus and adnexa normal, but the outlet of the pelvis encroached upon by a semi-solid mass about the size of a large cocoanut, springing, apparently from the rectal region. Rectal examination showed the mass to lie posteriorly to the rectum, and so pushing on the rectum as to bring it against the vaginal wall.

*Diagnosis.*—Post rectal cystic tumor.

*Operation* was advised and the following method was carried out: A semicircular incision was made along the coccyx and sacrum. The coccyx was now removed and the parts widely retracted so as to see well the territory to be dealt with, when the dissection toward the tumor was attempted. In dissecting off the wall the cyst ruptured and a large quantity of a thick glue-like fluid escaped. No hair or bone was found. The cyst wall was dissected out as far as it could be reached, the epithelial lining membrane curetted out thoroughly, leaving a large open cavity extending back into the hollow of the sacrum which was packed with gauze and the skin wound sutured. The rectum was not interfered with in the least as was shown by digital examination and irrigation, as well as by the normal bowel movements which the patient had after the operation. The patient had a long process of wound healing, owing to the continuous drainage necessary, for which I found the glass drainage tube, with the patient in the Syms' position, everything to be desired.

Sections of the cyst wall were given to Professor Tiedman, pathologist of Washington University, who reported cystoma, probably of rectal origin, with colloid carcinomatous degeneration.

Some of these sections are under the microscope, which I will be glad to have the members examine.

I report this case to you this evening because I consider this form of post rectal tumor a very rare one, especially one that grew to a large size in this region, sufficiently large to make its bulging anteriorly toward the

vagina a hinderance to the passage of the fetal head. In this case the history tells us that the size of the tumor made the crushing of the child's head necessary to allow delivery. From the embryological standpoint there is every reason to believe that this class of tumors owes its origin to the post-anal gut and should not be confounded with that form of rectal tumors which grow from the rectum, usually pedunculated, and occasionally present as a projection from the rectum. While the patient leads us to think that the fall she had astride the log caused this growth, literature only too plainly shows us that this variety of tumors is of congenital origin.

Bland Sutton, in his admirable work, "Tumors, Innocent and Malignant," says the following: "In order to appreciate the nature of cysts arising in the immediate neighborhood of the rectum, it will be necessary to consider a few points in connection with the embryology of this portion of the alimentary canal. In the early embryo, the central canal of the spinal cord and the alimentary canal are continuous around the caudal extremity of the notocord. This passage, which brings the developing cord and the gut into such intimate union, is known as the neurenteric canal. When the proctodem invaginates to form a part of the cloacal chamber it meets the gut at a point some distance anterior to the spot where the neurenteric canal opens into it; hence, there is for a time a segment of intestine extending behind the anus and termed in consequence the post-anal gut. Afterwards, this post-anal section of the embryonic intestine disappears, leaving merely a trace of its existence in the small structure at the top of the coccyx, known as the coccygeal body. There is good reason to regard the post-anal gut as the source of that variety of congenital tumors situated between the rectum and the hollow of the sacrum—congenital cystic sarcoma."

Dr. Lewis C. Boshier, of Richmond, Va., reports operating on seven cases of sacrococcygeal fistulæ caused by the rupture of cysts spontaneously in the median line. He cured the fistulæ by dissecting out and destroying the cyst wall.

In looking over the literature of these cases I find no mention of any malignant tendency in these tumors which makes the case I have reported one of especial interest, and I shall watch, with great concern, the future of the patient.

## The Protozoan-Like Bodies Described in Scarlet Fever.

By R. L. THOMPSON, M.D.,

ST. LOUIS, MO.

IN the *Journal of Medical Research* for January, 1904, Dr. Mallory described in the skin of four subjects who had died from scarlet fever, certain bodies that in their morphology strongly suggested that they might be protozoa, and I am asked tonight to speak regarding the appearance and significance of these bodies.

To all progress there is opposition and it is fitting that it is so. The establishment of any hypothesis is only possible by long and convincing labor. It was years after the discovery of bacteria that their relationship to disease was suggested and it was years after this suggestion that such relationship was established. But even after the discovery of the relationship of certain bacteria to certain diseases, a gap was left in our etiological knowledge of infectious disease that could not be filled in by bacteria on the one hand or neurasthenia on the other. And it is only recently that certain evidence has been brought forward to show that the protozoa may form a few cases at least in this desert of ignorance.

In certain of the protozoan diseases the organism is of a type that puts discussion beyond question, *e.g.*, trichinosis and amebic dysentery. In others, *e.g.*, malaria, no one questions the etiological significance of the parasite and its cycle can be well understood through the discovery of its development and transmission by an intermediary host. In yellow fever we suspect a parasite and in kala azar the discussion is not as to whether the organism found is a protozoan or not, but, how shall it be classified. In smallpox, bodies have been described by Wasalewski, Guaneario, Pfeiffer, Councilman, Howard, De Korte and many others, and more or less of a life cycle of the organism constructed, while one who has worked with these bodies can not help but believe in them. Their etiological significance as a factor in smallpox is still a moot question but

I am sanguine that their significance will be established. The organism described by Mallory and later by Duval in scarlet fever were found by Mallory in the protoplasm of the epithelial cells of the epidermis, between these cell and free in the lymph vessels and spaces of the corium. The majority vary in size from 2 to 7 microns in diameter. Duval, in addition to these situations, found them in the fluid of blisters obtained by the application of aqua ammonia. The bodies found in the skin are of two kinds, the reticular bodies and the rosettes. The first are round, oval, elongated or lobulated, and stain lightly but sharply with the blue, composed of finely granular reticulum either close-meshed or coarse-meshed. These forms are found both in and between cells of lower layer of corium and in lymph spaces of corium close to the epidermis.

The second group of bodies present a radiated structure (same situation). Sometimes the segments may be free from the central body. The frequent wheel and star shapes of these rosettes has led Mallory to propose the name of *cylaster scarlatinalis* for these organisms.

These bodies were found, as I stated, in but four cases. These were all early cases; the bodies are not found in the desquamative stage and the difficulty of getting material in early cases of scarlet fever may well be understood.

These bodies, Mallory suggests, may be interpreted in three ways—as artefacts, as degenerations or as protozoa. Against the first is the fact that in three pieces of skin from one of the cases fixed, preserved and stained exactly in the same way, the bodies were absent in the first, few in the second and numerous in the third.

Against there being degenerations is the fact that they appear not only in and between the epithelial cells but in the lymph spaces of the corium and they were found in cells that were in mitosis, besides their size, morphology and staining reaction separate them from being degenerated leukocytes, lymphocytes or epithelial cells.

In favor of their being protozoa is their distinct morphology (similar to the asexual cycle of malaria). A change can be followed from the small bodies to the formation of rosettes and from segments of rosettes to re-formation of small bodies.

Provided they are protozoa, have they causal relation to scarlet fever? They have never been found in normal skin. In the fifty-four cases of scarlet fever studied at Harvard with



same preservation and fixation, bodies like these were never found.

We can not fulfill Koch's law with protozoa—they can not be cultivated save in the tissue. In order to prove a series of bodies protozoa, we depend on ameboid motion, characteristic morphology and on developmental cycle (and of size, division, re-formation of bodies from which cycle started). In hardened tissue ameboid motion is sometimes suggested but a large of material is necessary to construct a cycle.

If these bodies are protozoa it is impossible to classify them until more is known of their life cycle. The majority of the forms suggest the schizogony of the malarial parasite. Until we can study them in cultivation their significance can not be clear.

I am not familiar with all the details of Duval's work, but it is, in the main, similar to Mallory's. His work is soon to appear in *Virchow's Archives*. Personally, I believe these bodies to be protozoa and to have an etiological significance in scarlet fever. I shall be glad to demonstrate the preparations I have at any time.

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### Formalin for Inoperable Cancer.

Seneca Powell recommends the treatment of inoperable cancer by soaking in a 2 per cent formalin solution and laying it on the tumor and covering with jaconet and cotton wool. By changing the dressing every six hours the discharge and fetor ceases, and the further progress is an aseptic one. The tumor loses its elasticity, and becomes friable and insensitive. Separation is accomplished without pain, though it is necessary to snip the fibrous bands passing into the deeper tissue.

### Embolism Following Operation.

Dearborn (*An. Gynec. and Ped.*) claims that thrombosis and embolism are more frequent following pelvic operations than after operations elsewhere in the body. It is reasonable to suppose that a large percentage of post-operative cases of pleurisy, pneumonia and pulmonary abscess may be due to emboli. The prognosis varies with the size of the emboli, the large ones producing almost invariably rapid death from asphyxia. A favorable course frequently results in the event of a very small embolus. An important symptom of thrombosis is a sudden increase in the pulse rate during convalescence, while the temperature remains normal. In regard to the treatment of either embolus or thrombosis absolute rest is imperative.

## LEADING ARTICLES.

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### ACTINOMYCOSIS.

As early as 1826 Leblanc<sup>1</sup> presented a very excellent description of this disease as involving the jaws of cattle, and to which he gave the name "osteosarcoma." When Rivolta discovered the presence of yellow granules in the contents of the swollen jaw of an ox he remembered that a few years previously Langenbeck had reported the finding of quite similar granules in the pus from a case of caries of the spine in a human patient. To these granules Harz gave the name, "ray fungus" or actinomyces, from their shape. It was about this time that Bollinger clearly demonstrated that the so-called "osteosarcoma," described by Leblanc was due to the ray fungus. Very shortly thereafter Israel and Poufick found that human and bovine actinomycosis were due to the same organism—belonging to the cladotrichæ. Actinomycosis is readily inoculable both into the human and bovine organism but, perhaps, carnivora are less susceptible. In cattle the jaw or tongue is usually involved, while in 50 per cent of the cases occurring in man the primary seat of the disease is the mouth and its neighborhood. Cattle are usually infected by eating diseased grain while man is infected, in at least 65 per cent of the cases, by coming in contact with infected cereals, hence farmers are so frequently affected. Any factor that causes an abrasion of the skin or mucous membrane prepares the way for infection. The chewing of straw or grain, or grass may be the cause. In von Partsch's case inoculation seemed to be due to infected surgical instruments.

In man no tissue is exempt from invasion. Von Bergmann<sup>2</sup> has seen 100 cases in the human, in 45 of which the jaw, and in 35 the neck were the site of lesion. The jaw, cheek and neck are especially likely to be affected. The abdominal viscera are more frequently affected than the respiratory tract. Israel and Partsch maintain that entrance is usually gained through carious teeth; they have demonstrated pure cultures in the cavities of carious teeth.

Very recently, Dr. Knox<sup>3</sup> reported 3 cases occurring in the same family. The 3 patients had been in the habit of spending a great deal of their time on the farm. The farmer had consumption, and cattle in the district had died of anthrax. All of the three patients had carious teeth and they all had glandular trouble early in life. Two of these patients died; the other being healthy and strong. Dr. Knox calls attention to the fact that in the early stages it may be difficult to distinguish actinomycosis from tuberculosis. He finds that the temperature is an important point. In actinomycosis an evening rise is not common unless the disease is accompanied by suppurative changes which Dr. Knox is inclined to classify among the later and more distinctive symptoms. Actinomycosis of the lung may continue for a long time without temperature or any distinctive symptoms except slight cough and expectoration. A suspicious symptom in any doubtful case is the appearance of swellings in a part of the body, especially if they appear upon the back—and swellings are generally the forerunners of abscess.

Perhaps, the only safe rule is to always examine—and not once but frequently—the pus and expectoration. The presence of the ray fungus may be difficult to find; the presence of the typical mycelium or clubs establishes the diagnosis. Dr. Poncet<sup>4</sup> thinks that the clinical diagnosis is more apt to be correct than the microscopic—especially since the parasites may not be demonstrable. Dr. Knox argues that an early diagnosis can be made by the aid of the microscope; suspicious symptoms should always induce the practitioner to examine sputum, pus, etc., carefully and repeatedly. The specimen should be examined by Gram's method; the typical mycelium may be readily recognized but the typical arrangement of the clubs is not usually present. Dr. Poncet thinks that the most striking clinical feature is the association of a cancer with those of an inflammatory lesion. Von Bergmann lays special stress upon the pseudofluctuating consistence, the dense infiltration of the tissues, the absence of sharp outlines, and, above all, the peculiar bluish discoloration of the skin over the soft areas.

#### TREATMENT.

Van Iterson<sup>5</sup> introduced the potassium iodid treatment into practice. At times potassium iodid alone has been shown to effect a cure. In 1885 Thomassen reported that iodid of potassium had a curative

influence, and it is probable, that in former times this drug was administered because the disease was regarded as of syphilitic origin. In some instances the iodids have been of no value. As much as 90 grains a day have been given without any symptoms of depression having been observed. Dr. Carr and others<sup>6</sup> have obtained beneficial results with the iodid combined with scraping of the parts. At present the surgical treatment consists in incising the part, removing the soft tissue with a spoon curette and then packing with iodoform gauze. The iodid treatment should also be administered. In some cases frequent cauterization has been found valuable. [E. A. BABLER, M.D.]

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<sup>3</sup>Lancet, Oct. 29, 1904.

<sup>4</sup>J.A.M.A., May 14, 1904.

<sup>5</sup>Quoted by von Bergmann.

<sup>6</sup>Lancet, Oct. 29, 1904.

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## PARASITES OF SMALLPOX, VACCINIA AND VARICELLA.

In our annual review<sup>1</sup> attention was called to the recent assertions of Dr. Councilman and the fact that his findings had been confirmed by those of Dr. Calkins. Very recently Dr. DeKorté<sup>2</sup> has submitted the vesicular contents collected in capillary tubes from the pocks of smallpox, varicella and vaccinia respectively, to a microscopical examination as a hanging-drop preparation, without any other manifestation whatsoever, large numbers of unicellular elements were found which on a warm stage showed ameboid movement. He thought that such elements could be leukocytes, pus cells or protozoa. To exclude the leukocyte theory variolous matter was examined which had been kept for six months in capillary tubes in a sterile condition, the virility of the lymph having been determined by successfully variolating a monkey. The unicellular elements were still present in large numbers. This made it highly improbable that they were leukocytes, as these latter bodies were found to disappear spontaneously from blood serum kept *in vitro* at 37°C. after six days, and after fourteen days not a vestige of them could be recognized. Furthermore, on attempting to fix the unicellular elements, especially such as were old, they invariably



disappeared. By using absolutely fresh material, however, it was found that these elements could be fixed with equal quantities of rectified spirits and ether, and could be stained with Loeffler's blue. DeKorté found that the nucleus of the element found in variolous matter did not stain at all, while in those from human vaccinia lymph it could not be decided whether the nucleus did or did not stain. In varicella lymph one or more nuclei will be found deeply stained. It is thus deemed possible to distinguished between the three varieties.

In favor of the theory that these elements are protozoa is the discovery that these unicellular bodies can be grown in pure culture on a suitable medium.

The organism is a spherical body  $1/2500$  of an inch in diameter, which contains a large centrally located nucleus, which is for the most part hidden by small, very refractile granules. The granules are considered to be spores, and when extracellular are motile, with the exception of those found in the glycerinated lymph, in which the glycerin, perhaps, prevents the motility. The cytoplasm of the cell is firmly granular, and often presents a reticulated appearance. DeKorté insists that the lymph must be collected from the vesicles of the several diseases and put up as hanging drop preparations. Variolous matter must be collected on the fifth day of the eruption or earlier. Human vaccinia lymph must be gathered on the eighth or ninth day of eruption and examined at once on a warm stage. Ten days after the eruption the bodies will not be found. Dilute glycerinated calf-lymph with 4 or 5 times its bulk of normal saline solution, before examination. Parasite of chickenpox is found on first, second and third day of eruption.

It is hoped that further researches will be made along the same line.

[E. A. BABLER, M D.

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<sup>1</sup>Courier of Medicine, Jan., 1905, pp. 39-40.

<sup>2</sup>Practitioner, Jan., 1905.

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#### ACIDOSIS IN CHILDREN.

Nine years ago Keller discovered that certain digestive disturbances in infants lead to an increased excretion of ammonia in the urine. This discovery has been the beginning of a very extensive research in the metabolism of the infant in which the leading pediatricists of Europe participated.

Czerny and Keller regarded this increased ammonia-excretion, following Naunyn's dictum, as an evidence that the organism has to excrete an increased quantity of acid. The origin of this acid was found in the fat contained in the food. This acid intoxication has been made the principal etiologic factor of a variety of clinical diseases in infancy. A search for these fatty acids in the organisms, or for intermediary acids, resulted in failure, hence Pfaund'ler, in an exhaustive study took another view, namely, that the increase formation of ammonia is caused by a perversion of the synthesis of urea, and the acidosis secondary.

This again led to further research and argumentation. It was discovered that an increase of fatty acids in the alimentary canal robs the organism of needed alkalies, and that ammonia supplies this deficiency. This enterogenic acidosis is possible even when fats are deficient in the food.

But all this does not explain the intermediary acids, that is, those excreted in the urine with or without the ammonia.

Another clew was furnished by the research work of Herschfield, and others, who discovered that when the carbohydrates are excreted, as in diabetes, there is a marked tendency to the formation of fatty acids and derivations of these acids, namely, the acetone bodies. Now, this tendency to acidosis forms a marked peculiarity of childhood. It is observed commonly in the acid breath in certain fevers and gastro-enteric disturbances.

An interesting investigation on this tendency in children has been made by Meyer and Langstein (*Verhandlung d. 21 ; Versámmnl. d. Ges. f. Kinder.*) They fed children on a fat and proteid diet, but excluded carbohydrates and found a very large increase in the acetone bodies in the urine and expired air, with a corresponding increase of ammonia. They conclude that there is a strong tendency to acidosis in young children, and that the principal excretion of acetone occurs by the breath. When the carbohydrates are withdrawn, oxybutyric acid appears in the urine ; and an increased excretion, of ammonia results.

A very important practical deduction is that it is harmful to give much fat in the food when there is a disturbance in the absorption or metabolism of carbohydrates.

## EDITORIAL COMMENT.

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Washington University Hospital.

Some months ago we called attention to the fact that the Washington University contemplated transforming the Missouri Medical College building into a modern hospital for teaching purposes, and now it is our pleasure to inform our readers that this is a present-day fact. The student who spent his allotted time at the Missouri Medical College would scarcely recognize his former haunts since the transformation has been so thorough and extensive. He no longer hears the maddening clamor of hurrying feet; he no longer sees Peter or hears the familiar bell; when he enters, an elevator stands in waiting; the medical amphitheater has been converted into surgical clinic rooms and medical apartments; the old surgical amphitheater greets him with extended arms and familiar scenes. As he reaches the second floor he finds the microscopical laboratory and the amphitheater converted into cozy rooms and neat, spacious wards where bright-eyed and tender skillful nurses inspire new hope into the sufferer and make life seem more pure and beautiful. As he stands in the large, newly and modernly-equipped operating room on the third floor he recalls the smiling face and tender heart of Professor Curtman—he also remembers many silent hours spent in front of the Bunsen burner. He finds the dissecting room a thing of the past—he sees that the same transforming hand has preceded him. In a word, all has been changed and he feels lost, and yet, strangely at home—he feels happy that the long-felt want has been supplied and that the medical student today is given just what will enable him to appreciate the significance of practical experience.

We congratulate both student and University, and hope that the time is not far distant when the University will have a hospital of five hundred beds.

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Lecithin in Milk.

At present there is much interest being placed in the importance of lecithin in metabolism and several pharmaceutical chemists have placed lecithin on the market, and it is recommended for a variety of

therapeutic purposes. In pediatrics, as has been advised, lecithin may serve a useful purpose in the prevention or care of several diseases depending on perverted digestion and metabolism. It is usually regarded as an invariable constituent of all foods. One of Hoppe-Seyler's students is said first to have found lecithin in milk, and Saklasa (1897) found about 0.1 gram of lecithin in cows' milk and 1.7 grams in a liter of human milk. His method of examination consisted in an extraction of dried milk with ether and absolute alcohol, determining the phosphorus and regarding this as lecithin phosphorus. Burow, in the laboratory of Bunge, showed that this method is defective, as absolute alcohol dissolves some inorganic phosphates, and recommends that only the phosphorus in the ether extract be regarded as lecithin phosphorus.

Now, Schlossman denies entirely that milk contains free lecithin (*Arch. f. Kinder.*, Vol. 40, page 17). He demonstrated that the methods used are fallacious, that casein in small quantities may enter the ether during violent agitation or heating. Hence, all the evidence as yet produced does not prove that milk contains lecithin. He ridicules Bunge's generalization, that since the brain of the infant is relatively larger than other mammals a larger store of lecithin must be found in human milk. Schlossman also denies that the presence of nucleon or phosphosarcic acid (Siegfried) in milk has definitely been established. Finally, he denies that organic phosphorus may be changed to inorganic phosphorus by pasteurization or sterilization as has been surmised by Baginsky and others. Schlossman's research only emphasizes the sad fact that nothing concerning the chemistry of milk is very certain as yet.

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### Acute Meningitis.

In the January number we called attention to the epidemic of cerebrospinal meningitis in New York City, Boston and several other Eastern cities. Since that time the situation in New York City and several southern New England cities has become so serious and alarming that the subject demands further consideration. Epidemic cerebrospinal meningitis has, perhaps, existed since the world began but it was not until 1887 that Weichselbaum discovered the micro-organism that produced the disease. To Jäger, however, is the credit due of having been the first to prove that this diplococcus, which has been



termed *Diplococcus intracellularis meningitidis*, was the true cause of the disease. It has been conclusively shown that the pneumococcus as well as the streptococcus is capable of producing a meningitis but not the epidemic form of cerebrospinal meningitis. The latter disease is contagious and the micro-organisms have been found upon the nasal mucosa of healthy individuals. The patient is usually a child who complains of severe pains in the back, neck and head; the first symptoms may be a severe chill or a convulsion; vomiting, fever, photophobia and a general hyperesthesia quickly follow. The patient assumes a characteristic posture—the legs are drawn up, the head retracted, the hands limp, the mouth open and the eyes partly closed. He lies there in a stupid condition and cries when disturbed. By elevating the retracted head you lift the entire body. Kernig's sign is a very constant one in these cases.

During the past few weeks the press dispatches state that the mortality in New York City has been between 70 and 80 a week. The treatment is very unsatisfactory. Perfect isolation and quietude are of prime importance. Very recently Dr. Waitzfelder<sup>1</sup> has reported 17 cases treated with the antitoxin of diphtheria, with 5 recoveries, 3 death and 9 still under treatment.

Dr. Councilman<sup>2</sup> has recently presented a very excellent memoir upon the etiology and pathology of acute meningitis which clearly demonstrates the necessity of extreme care in the treatment of the disease. In every case lumbar puncture should be made and the specific micro-organism searched for. In some cases the puncture will relieve the pressure symptoms. The truth of the matter seems to be that we have not, as yet, discovered the specific remedy. We administer opium to relieve the pain and restlessness; we give the iodids because we do not know that it does harm. We hope the near future will enable us to treat the disease scientifically and successfully.

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#### Operation for Gallstone Disease.

The recent report of the Mayo Brothers (*Am. Jour. Med. Sci.*, March) on 1000 operations for gall bladder disease discloses the fact

that the surgery of the gall bladder has become a science in itself. Rather strange is the admission that disease of the common bile duct with involvement of the gall bladder increases the mortality almost five times over those diseases in which the gall-bladder alone is involved. Yet, as the gall-bladder can be removed with impunity, while the common duct must remain the explanation is not difficult. The surgery of the common duct is dangerous, since it introduced two serious elements—jaundice and infection. The report is a fine review of an enormous experience and study.

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#### **New Professor of Medicine at Johns Hopkins.**

It has been announced that L. F. Barker, of Chicago, has been appointed Professor of Medicine in the Johns Hopkins University and Hospital. W. S. Thayer has been appointed Professor of Clinical Medicine. Both men were students under Professor Osler, and well known in the scientific world as investigators and students of medical problems. It will generally be conceded that Johns Hopkins Hospital has wisely chosen, and the brilliant leadership of Dr. Osler may be duplicated in time. Dr. Barker is a Canadian by birth and has shown extraordinary ability as a teacher, writer and investigator.

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#### **Pseudomalarial Types of Endocarditis.**

Again and again are cases of infective endocarditis mistaken for malaria, and Coleman (*Am. Jour. Med. Sci.*, March) has done a service in again calling attention to marked similarity between the clinical phenomena of malaria and endocardial infection. The endocarditis may be characterized by a fever which takes the double quotidian type, or these types may be mixed. What is still more remarkable he reports a case which was characterized by fever of a septan type. The simulation of malaria by infective endocarditis appears not only in the clinical symptoms, but even in the pathological anatomy. The enlarged spleen, the hemolysis and even the pigment in the tissues (though in different degree) in both diseases are practically the same.

**DIAGNOSTICS.**

In Charge of W. L. JOHNSON, M.D.

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**Unilateral Hyperesthesia of the Tongue in Acute Otitis Media.**

Wainwright (*Laryngoscope*) finds that a stinging pain in the tongue and a tingling of that organ on the same side as the ear trouble is present in some cases. Lemon or hot drinks makes this the more marked.

**Diagnosis of Gonorrhea.**

Alexander, of Breslau, spoke of a new agent for the diagnosis and treatment of gonorrhea. He injects a 1 per cent solution of peroxid of hydrogen into the urethra after the gonococci can no longer be demonstrated. The resulting secretion often shows the organism again. The author assumes that the foam formed opens the choked-up glands and renders them susceptible to treatment with bactericidal injections.

**The Vagus Reflex in Its Practical Application to Life Insurance Examinations.**

Mays (*Med. Ex. and Prac.*) asserts that a dozen years ago he observed that pain could readily be brought forth by applying pressure with the finger or thumb over the vagi in the neck of consumptives, and since that time has studied the effects of such pressure with a view of discovering :

1. Whether pressure of this kind produces more pain on one side than on the other side of the neck.
2. Whether it causes dizziness, swooning, coughing or pain in other parts of the body, or any other symptom.
3. Whether pulmonary consumption exists in the subject in which such disturbances following pressure on the vagi are found and, if so, on which side of the body.
4. Whether family history of pulmonary consumption can be traced in such cases.
5. Whether, when such vagus disturbances are found in the absence of a personal history of consumption, there is present or not a family history of this disease, and if so, to what degree.
6. Whether in the absence of such vagus disturbances on pres-

sure there is present or absent either a personal or family history of this disease.

Some conclusions of Mays' are :

1. That the vagus reflex is universally present in active pulmonary consumption, and in the vast majority of such cases it is situated on the same side of the body as that on which the lung affection is found.

2. That the vagus reflex is present in about 80 per cent of healthy individuals who have a family history of consumption.

3. That the vagus reflex is universally absent in healthy individuals without a family history of consumption, provided there does not exist a family or personal taint of alcoholism, insanity or other neurosis.

### Chronic Arterial Hypertension.

Cook (*J.A.M.A.*, January 28, 1905) advocates the accurate estimation of arterial tension in routine examinations. The works of Janeway, Broadbent, Albutt, and Stengel are referred to and emphasis is laid upon the fact that arteriosclerosis and chronic hypertension are not necessarily the same. Prior to the complications - the involvement of special organs, there may be slight mental changes and noticeable irritability of temper, and a tendency to become low-spirited and morose. Sleep is uneasy, and may be occasionally interrupted, shortly after retiring, in a struggle for breath, or with merely a distressed feeling around the heart. Heavy suppers and high living in general are not borne so well and may be associated with dyspeptic symptoms. Exertion more readily induces shortness of breath.

However, the diagnosis is dependent on the demonstration of a chronic increased arterial pressure and the exclusion of organic disease or evident toxemia, which could account for it. He maintains that there is in addition to the chronic hypertension form—1, arteriosclerosis; 2, cardiac, pulmonary and cerebral compensation; 3, toxemia, and 4, *primary chronic hypertension*.

### Acute Septic Inflammations of the Throat and Neck.

Sir Felix Simon (*Brooklyn Med. Jour.*, January, 1905) gives his attention to these affections of a severe, often fatal nature, which are considered, and at first so closely resemble, ordinary tonsillitis. The cases ought not be called "Ludwig's angina," "abscess of the larynx," or "erysipelas of the larynx"—these are different stages of one condi-



tion, septic inflammation. The disease may occur in previously healthy individuals, sometimes in the diabetic. The patient complains of violent sore throat and in the course of a few hours grave dysphagia supervenes. The patient at this time shows simple congestion of the fauces or, in more severe cases infiltration, or even considerable edema of the parts. "In a good many cases a particularly bluish, sometimes almost dark blue, hue will warn the experienced observer to be on his guard that this not an ordinary sore throat and that something more serious is developing." In the more severe cases a few hours after the initial pharyngeal symptoms, the dysphagia passes over into complete inability to swallow, the patient becomes hoarse and this hoarseness in turn quickly passes into complete aphonia, dyspnea begins to make its appearance.

You find now the epiglottis very red, translucent, often bluish, enormously tumefied and sometimes looking like a big sausage rolled over the larynx, the interior of which it may entirely obscure. The dyspnea quickly increases and in such cases usually necessitates tracheotomy, often enough, within twenty four hours from the onset of the first symptoms.

### Dyspepsia.

Roswell Park (*Wis. Med. Jour.*, August, 1904) considers some of the phases of dyspepsia :

1. Cardiospasm, described by Zenker,, characterized by difficulty in swallowing which appears to be caused by an associated spasm of the muscle structures of the cardiac end of the stomach.

2. Pyloric obstruction. Intractable vomiting, especially in the young.

3. Gastric ulcer. The three significant symptoms are pain, vomiting and hematemesis. The pain is located in the epigastrium and radiates not infrequently toward the back and region of the left shoulder.

4. Gastric dilatation. To be suspected when there is an increase of thirst with poor appetite and an almost constant feeling of dryness in the throat, when a considerable amount of gas is expelled from the stomach, and when these symptoms accompany an almost constant feeling of oppression or soreness in the epigastrium.

- 5 Gastroptosis.

6. Cancer of the stomach. Vomiting, pain and presence of a

tumor. But one may suspect a cancer long before it is palpable. The chemical tests are here helpful.

7. Ulcer of the duodenum. This has many characteristics similar to those of gastric ulcer, the pain and tenderness being rather vague, with occasional sharp spasms or stitches upon any sudden action, like turning quickly or sneezing. The blood, if it comes through the stomach, is not likely to be so fresh as when it takes place from a gastric ulcer. The pain which follows the ingestion of food will not follow so early, since it is not produced until the food begins to enter the intestine. Park then takes up the gall-bladder and ducts, and the pancreas and shows how varied the causes back of a "dyspepsia."

### The Diagnosis of Cerebrospinal Fever.

Mailhouse (*Yale Med. Jour.*, November, 1904) gives the following as a differential diagnosis of epidemic and tubercular meningitis:

	Epidemic Form.	Tubercular Form.
Onset	Sudden	More insidious
Coma	Comparatively early	Rather late
Spinal symptoms	Prominent	Inconspicuous
Retraction of head	Early	Seldom
Course	Usually rapid	More protracted
Skin eruption	In more than half the cases herpetic or petechial	Rare and not herpetic or petechial
Lumbar puncture	Diplococcus intra.	Tubercle bac.
Kernig's sign	More likely and early owing to spinal involvement	Late, if at all
General hyperesthesia	Prominent	Not prominent
Cranial nerve palsies	In protracted cases	More commonly has palsies of ocular and peripheral muscle, hemiplegia and aphasia
Optic neuritis	Not uncommon after four or five days	Occurs late, if at all
Pulse ratio	To temperature often less than normal. Deafness	Grinding of teeth. Hydrocephalic cry. Tubercles in choroid.

### Calculi in Blandin's and Submaxillary Glands.

Jarecky (*N. Y. State Jour. of Med.*, February, 1905) reports

cases. The diagnosis of the calculus in Wharton's duct is easily made by passing one finger along the floor of the mouth and another on the opposite hand below the jaw so as to compress the duct between the fingers gradually throughout its entire length. Any hard concretion is bound to be felt. A fine probe can also be passed through the duct and the gritty feeling will reveal the nature of the obstruction. Blandin, in 1823, and Nuhn, in 1845, described underneath the tip of the tongue, on each side of the middle line, a gland the size and shape of almond, having vessels and nerves, but quite distinct from the sublingual. If the tip of the tongue be curled up and the surface dried, pits marking the opening of the ducts, two or more on each side, may be seen. One of his cases had a calculus of this gland and also one in Wharton's duct. The author thinks these calculi are important from the possibility of considering the swelling as malignant.

#### **Appendicitis in a Child Discovered by Rectal Examination.**

Dan McKenzie (*Brit. Jour. of Children's Diseases; Med. Rec.*) emphasizes the fact that rectal examination should be undertaken as a matter of routine in all doubtful cases of illness in children more especially in those in whom the symptoms point to the abdomen as the seat of disturbance. The writer reports a case in point :

A boy, aged 4 years, was suffering from pyrexia and malaise when first seen. As he was subject to acute gastric attacks, nothing unusual was anticipated. On the day after the first examination, he complained of stomachache and pain on micturition. The abdomen seemed to be hard and tender. Per rectum, the bladder was felt to be full and fluctuating. As some cystic trouble was suspected, the patient was anesthetized and a catheter passed into the bladder, but nothing was found to account for the symptoms. Rectal examination cleared up the cause of the illness. Bimanual palpation of the pelvis and abdomen revealed an oval, rounded tumor about the size of a pigeon's egg, lying toward the right side of the pelvis, in the right iliac region. Appendicitis was diagnosed. At the operation, which was performed the same evening, it was found that the appendix was perforated in several places and the organ was lying in a pool of pus, so that if surgical intervention had been delayed even for a day or two, the child would doubtless have died. Convalescence was complicated by the passage of a fairly large uric acid calculus. After this, recovery was uneventful.

The pelvis in a child is so much shallower than the pelvis in the adult that it is possible with a finger in the rectum to investigate the condition of the abdomen far more completely than can be done in later life. Anesthesia, in the writer's experience, is necessary for a satisfactory examination of this kind.

### Graves' Disease.

Stealy (*Lancet Clinic*, December 31, 1904) answers the question, "why so many errors in the diagnosis of Graves' disease?" The triad of cardinal symptoms is "goiter," "ophthalmos" and "tachycardia"—as generally given. As a matter of fact their percentage is 82.89 per cent 48.2 per cent and 98 per cent respectively. Stealy lays stress upon the accelerated pulse and persistent nervousness without assignable cause. Vascular disturbances, as sudden flushing and feeling of heat about the face is present in 87 per cent. In only 20 per cent will we find the three cardinal symptoms. A goiter may not be appreciable until the patient is made to lie down.

Stary appearance of the eyes must be sought for and inquired into. Suddenly experiencing difficulty in buttoning the collar and a feeling of fullness or choking in the jugulum are frequent symptoms. Associated intractable stomach disturbances with hypertrophic liver, epigastric and hepatic tenderness and frequent diarrheal attacks are not uncommon. Fever is not uncommon, and we must sometimes differentiate this affection from tuberculosis.

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## THERAPEUTICS.

In Charge of PHILIP NEWCOMB, M.D.

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### The Treatment of Heart Lesions.

Abram (*Lancet*, August 6, 1904) in outlining the treatment of valvular lesion makes a division of the subject as follows: First, where compensation is practically equal to the lesion. Second, where compensation is equal to the lesion when the patient remains at rest. Third, where compensation is not equal to the lesion.

In the treatment of the first class of patients the author counsels moderation in all things, mental as well as physical, in conjunction with general dietetic and hygienic measures.



In regard to tobacco and alcohol, while total abstinence is desirable, their use is not absolutely prohibited. If the lesion be mitral stenosis there is already some danger of hemoptysis or embolism, the former of which may be combatted by means of a free saline purgative and the administration of opium. Marriage for female patients with well compensated mitral regurgitation is permissible since such cases frequently pass through a pregnancy and confinement without difficulty, but in the case of mitral stenosis such a course is less certain and marriage is inadvisable, since grave complications, such as tachycardia or acute edema of the lungs may arise. Active treatment at the first sign of distress by means of a restricted diet, purgation and, in serious cases, venesection, may, however, avert the necessity for the induction of premature labor. Lesions of the aortic valve are to be considered an absolute bar to matrimony.

The second class of patients have already been subjected to palpitation, precordial pain and dyspnea upon exertion, and in aortic cases even headache, giddiness and throbbing of the cervical vessels may be present. At this stage absolute rest in bed for a week, with limitation of diet and fluids coupled with mild purgation should be insisted upon. Further treatment by means of general tonics, with small doses of digitalis when continued rest is not possible, may serve to establish compensation. During the interval in aortic cases bromid and iron have been found of value.

The determination of the exact valvular lesion must always be considered of prime importance, as well as the possibility of vascular or renal complications. Whenever a high tension pulse is noted in conjunction with arterial degeneration an eliminative treatment is in order, and this can best be carried out by means of a rigid milk diet, diuretics and mineral waters, by which means toxins are carried off and vascular tension lowered.

The third class of patients are pronounced victims of "heart failure" and in many instances, since rest in the recumbent posture is impossible the "heart chair" must be called into requisition. Of general therapeutic measures, care in the diet, especially limitation of fluids must be exercised, with attention to the bowels and the administration of hypnotics for sleeplessness when necessary. In reference to the latter point, Abram has found opium far superior to trional, sulphonal or paraldehyd in mitral cases where this symptom, in conjunc-

tion with mental depression, is found most often, but the same holds good in cerebral excitement or mania observed occasionally in aortic cases. When the stomach or liver is much engorged, blue pill or the pill of mercury, digitalis and squill, known as Niemeyer's pill have been long esteemed.

In some instances the instrumental removal of edematous fluids, especially in the serous cavities, may be necessary. Atropin and strychnin, hypodermatically, frequently are of use in the alleviation of dyspnea, and the sinking sensation of the later stages can be relieved by opium or brandy.

In discussion of the old question regarding the use of digitalis in aortic cases the author takes the stand that when direct cardiac stimulants are indicated, after the failure of eliminative measures in cases of the cardiavascular type, that strophanthus is to be preferred, and this is given during the day supplemented by a dose of the double salt of sodium acetate and theobromin (argurin) night and morning. But even in this class of cases, when the pulse tension is low, digitalis is demanded and should be given without hesitation whenever the mitral valve becomes involved to the extent of insufficiency. The hypodermatic use of digitalin should be substituted when no toleration for digitalis per os can be established.

Schoat (*Lancet*, July 10, 1904) presents a most comprehensive dietary for the subjects of chronic cardiac diseases and discusses the use of tobacco by these patients. In general the author considers animal food allowable, especially fish and poultry, except the more indigestible forms of these varieties, such as eels, goose breasts or livers and salmon, lobsters or crabs when taken with rich sauces or mayonnaise. Oysters and game, if fresh and plainly prepared, need not be feared, but meat or fish smoked or salted can not be advised because of the thirst engendered by their use and consequent danger of too copious drinking of water. Hot seasonings of all kinds, especially red and black pepper, are to be avoided, since they are productive, not only of great thirst and gastric irritation, but have moreover, an irritative effect upon the kidneys themselves, which may give rise to complications in these cardiac patients. Salads, containing pepper, sausages, goulasch and spices, such as nutmeg, maces, cinnamon and vanilla, together with horseradish, which latter produces flatulence in addition, are all, therefore, to be condemned. Of the fats, butter and cream in

moderate amounts are not injurious, but the fat of ham and bacon should be forbidden because of its undigestibility. Stewed fruit is allowable and frequently desirable on account of its influence in counteracting the almost habitual constipation found in chronic heart disease, and the same appears to hold good for some peeled raw fruits, such as apples, pears, apricots, peaches and oranges. Schoat, however, condemns absolutely raspberries, gooseberries, currants, cranberries, pine-apples, walnuts, Brazil-nuts, hazelnuts, and, unless the stones have been removed, even grapes may cause trouble.

Extremes, either of heat or cold, are not good for the sufferer from heart disease and it is important to remember this fact when ice is prescribed for the control of vomiting, as the excessive use of the same may cause extreme gastrodynia or even congestion of the liver.

In general, a mixed diet is absolutely essential for these patients since the extensive use of animal food may cause the excretion of urine, heavy in solids and uric acid, with consequent irritation of the kidney followed by hypertrophy and dilatation of the heart. The alternative of an exclusive vegetable diet is equally injurious on account of the large amount of food required to make up the necessary nutrition, and, since a carbohydrate diet has been found to encourage rather than to prevent arteriosclerosis.

In regard to the matter of drinking at meal times the principal care must be to see that the stomach is not overloaded from the amount of fluid ingested or from the greater amount of food taken in by reason of drinking. In plethoric or adipose patients or those suffering from fatty heart it is considered better, however, to interdict the use of fluids with the meals.

The author regards tobacco with great disfavor in cardiac diseases, and recommends either the entire discontinuance of its use or else a most sparing indulgence with very dry tobacco and a long stemmed pipe, with a thorough understanding upon the part of patient that his indulgence is contrary to his own interests. While aware that many observers regard moderate smoking as harmless in heart disease the author bases his opinion upon his clinical experience, which supports the assumption that excessive smoking is often the only assignable cause for the production of chronic heart disease and arteriosclerosis.

### Recent Reports on Stypticin.

Herman J. Boldt (*St. Louis Med. Rev.*, Vol. LI., No. 3) presents a report upon his recent experience with stypticin and states that while it should not be regarded as a specific in all cases of uterine bleeding yet it has been found preferable to any other remedy. In 35 cases of fibromyomata the use of stypticin did not influence 24 cases, 11 were benefited to a greater or less extent, and one patient, with excessive menstruation from the presence of an interstitial fibroid, was markedly relieved. Where the hemorrhage was due to cancer of the uterus 9 cases gave negative results. In conjunction with the curette, stypticin proved effective in hyperplastic endometritis, but did not favorably influence the glandular form; 5 out of 9 cases of chronic retroendometritis gave favorable results from the use of the drug. Results in the various forms of non-suppurative pelvic inflammation were more favorable, only 3 out of 23 patients proving unresponsive to its use, and, in menorrhagia of virgins without pelvic changes, 12 out of 17 cases were benefited.

In the treatment of irregular bleeding during pregnancy stypticin was found beneficial and devoid of untoward influences, and satisfactory results were also obtained in the atypical hemorrhages of the climacteric period not accompanied by pathological lesions.

Boldt considers it useless to continue the use of stypticin if no effect is produced by three large doses (2.5 to 5 grains) in ordinary hemorrhages or where two hypodermatic injections of 5 grains each at an interval of four to twelve hours have not decreased the hemorrhage due to fibroids. The author has never witnessed any toxic or unfavorable manifestations from the drug, even when given in such unusual amounts as 5 grains every three hours.

E. Koegl (*Mon. f. Urologie*, No. 2, 1904) reports a case of severe hemorrhage following catheterization in a man aged 79 years, which was most signally benefited by stypticin used as a local and internal hemostatic. The patient had been the subject of prostatic hypertrophy for 20 years, with a resultant cystopyelitis and uroseptic condition. When a sudden hematuria, with symptoms of collapse and a distention of the bladder, appeared, following catheterization, stypticin was resorted to after failure with other measures and the impracticability of operation. Irrigation of the bladder with a 10 per cent solution of the drug was practiced until the return was only slightly blood-stained, when, a suppository of a half grain of stypticin was introduced into



the prostatic urethra together with internal administration every three hours. The author states that the hemorrhage ceased on the third day and that, moreover, the urine was then clear, proving, in his opinion, the antiseptic as well as the hemostatic properties of the drug.

### **The Therapeutic Uses of Hamamelis Virginica.**

H. R. Costan (*Therap. Gaz.*, Vol. XXVIII, No. 12) ascribes to hamamelis virginica a tonic, astringent, hemostatic and antiseptic action, having power as a vascular sedative upon the muscular coat of the vessels and acting as a vasoconstrictor of the superficial vessels by coagulation of albumin.

Used externally, the author states that it is useful in sprains, bruises, local congestions, anal fissures, ulcers, both simple and varicose, phlegmasia alba dolens, eczema, rhus poisoning and urticaria. It is a most efficient application in capillary hemorrhage and the fluid extract is strongly recommended as a topical application to the interior of the uterus in cases of intermenstrual bleeding with lax and congested endometrium, in many cases a curettement being avoided by its use. The distilled extract is used with success for burns and herpetic eruptions, and, when diluted with an equal amount of rosewater, will readily relieve sore or bleeding gums, oral ulcers, relaxed uvula, and, in weak solution, is an agreeable spray in hypertrophic nasal catarrh.

In the treatment of ulcers and varicose veins Costan prefers the fluid extract to the distilled extract and uses it either full strength or 25 to 50 per cent in olive oil or glycerin. In congestion of the hemorrhoidal vessels a suppository is advised containing solid extract of the drug with ointment of stramonium and cocoa butter, the bowels having been first thoroughly emptied.

For internal administration, the author regards hamamelis virginica as a tonic to all mucous membranes and has found it valuable in hemoptysis, hematemesis, menorrhagia, metrorrhagia, and especially so, in hematuria from the kidney itself or from urethral bleeding. In hemoptysis it is advisable to give it in combination with ergot and digitalis and in hematemesis in a solution of adrenalin.

Briefly, hamamelis virginica should be used, both externally and internally, in all forms of capillary and venous hemorrhage and in all forms of vascular diseases accompanied with distention of their caliber.

## SOCIETY PROCEEDINGS.

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### MEDICAL SOCIETY OF CITY HOSPITAL ALUMNI.

*Meeting of January 19, 1905 ; Dr. John Green, Jr.,  
President, in the Chair.*

Dr. RALPH L. THOMPSON read a paper (see page 351, this issue) on the

#### **Protozoan-Like Bodies Described in Scarlet Fever.**

##### DISCUSSION.

Dr. R. B. H. GRADWOHL was personally very much interested in this subject and thought that some of the members would remember that in 1899 he had demonstrated before the Society a bacterium which had been first described by Dr. Class, of Chicago, and which he thought the etiological factor in this disease. It was a diplococcus which he found in the throat, blood, secretions, urine, etc., of scarlet fever patients. Dr. Gradwohl was attracted by his work and did some work on his own account while in the City Hospital and demonstrated the fact that these organisms were present in scarlet fever patients. Some work was done by Class in inoculating this organism into animals. He inoculated young pigs and produced the fever and eruption with desquamation, but not a fatal disease. Sections of the organs of the animals killed afterward showed the bacterium. The speaker had thought with Class that this was the cause of scarlet fever. He had not done much work along that line since, but in view of the researches of Mallory and others, he was doubtful if the work done by Class, himself and others, explained it as well as they had thought it did. Scarlet fever was a disease in which the symptoms were due to more than one organism. It was possible that the streptococcus was responsible for some of the untoward symptoms and some of the inflammatory conditions found in scarlet fever patients. The question had been asked him whether this diplococcus was not a form of streptococcus.

He did not believe it was. Baginsky, of Berlin, had found an organism which, in his opinion, was a streptococcus and he thought he had found the cause of scarlet fever in that organism. From the description given by him Dr. Gradwohl had always thought it was of the same class as the one found by Dr. Class and himself. However, but few others had succeeded in finding the organism that they did and whether they were in error or whether it had existed only in the cases they studied, he did not know.

Dr. A. E. TAUSSIG said it should not be forgotten that there was a good deal of evidence speaking for the streptococcus as the cause of the scarlet fever. It had been found in the blood of a considerable number of cases. A number of observers had reported the results of an examination in cases of a scarlatiniform rash due to a streptococcic infection and resembling scarlet fever so distinctly that they might be considered the same disease. Moreover, the results obtained, especially by Viennese clinicians in the treatment of scarlatina by means of antistreptococcus serum have been so striking as to lend much weight to the view that streptococci are the chief agents in the production of this disease. Even if the structures under consideration were shown to be purely protozoan their etiological significance in scarlet fever could not be shown until their life history had been worked out and particularly until the sexual as well as the asexual stage had been demonstrated.

Dr. GEORGE HOMAN supposed that the three specimens mentioned by the speaker were taken post motem, but this was not quite clear, if such was the fact he would like to have it stated.

Dr. CLARENCE LOEB said that if these organisms had not been found in the desquamative stage, he would like to ask the essayist how he accounted for the infectious nature of the disease, at that period.

Dr. THOMPSON, in closing, said that these bodies represented only a certain stage in the development of the life cycle of the organism. There must be many stages they knew nothing about. They either broke up into small bodies that could not be seen with the microscope or that could not be differentiated from granular matter. It was supposed that these spores were present in the scales and gave rise to the infection. In reply to Dr. Homan's question Dr. Thompson stated that the cases of Mallory were all autopsy cases. The specimens were

obtained in the early eruptive stage. He had been glad to hear the remarks relative to the bacterium and its origin. The streptococci were of great significance in scarlet fever and smallpox. Practically all smallpox patients who died, died of streptococcic septicemia. The lesions at a certain stage always contained pyogenic organisms.

Dr. WM. S. DEUTSCH read a paper (see page 348, this issue) on a

### **Peculiar Post Rectal Cystoma.**

#### DISCUSSION.

Dr. ERNST JONAS had examined this case several times before the operation took place. Upon first examination he recognized it as being a tumor entirely different from all tumors of this region he had ever seen. The examination proved that the doctor was more or less right for having adopted the course he did in the confinement. Upon vaginal examination he came upon this tumor, about one and a half inches from the introitus of the vagina which crowded the left side of the vagina to its right side, leaving only a small cleft. To get through this cleft he had to press the tumor away and crowd his way further upward to the uterus. The uterus showed nothing abnormal but the vaginal wall was closely attached to the tumor. The right side of the vaginal wall was absolutely undisturbed, and only the mucous membrane of the left side could be moved upon the cystic tumor. The first and most important question was whether this tumor was intra-peritoneal crowding the peritoneum downward, or whether it was extraperitoneal crowding the peritoneum upward. It was not decided with absolute certainty, but the diagnosis of extraperitoneal cystic tumor was responsible for the route of operation.

Perineal incision with removal of the coccyx was selected. He believed this tumor might have been attacked just as well through the left side of the vagina, though perhaps, the perineal route was the safer one. The rectal route is a nasty one and not often selected now on account of the danger of infection. Whether there was any reason for the embryotomy in the confinement was not a question at issue, but the tumor being a cystic one might have given the doctor a chance for puncture. The microscopic examination of the removed tissue seemed to show it to be malignant, but the clinical picture was against that. The drainage tube was left in and the wound healed up perfectly. The woman went home apparently cured. Of course, if the



microscopical examination was absolutely right, patient has no chance of staying well.

Dr. N. W. SHARPE, while he considered the operative attack, as described, skillful and beyond reproach, felt it was most unfortunate that the wall of the cyst had been ruptured. It was also unfortunate that it had not been possible to get numerous sections of the wall, for as it was, it was impossible to determine the actual extent of the carcinomatous degeneration. If the condition was absolutely localized and had been entirely removed, the patient would probably be cured; if however, the degeneration had penetrated the wall, or if the malignant process had penetrated the wall, and had begun to invade contiguous or neighboring structures, the patient stood a chance of a future spread of the disease. He was not inclined to believe Dr. Deutsch's fear would be confirmed, viz., that there would be a breaking down of the local tissues followed by carcinomatous degeneration, *unless* a reimplantation of carcinomatous tissue had occurred during the operative attack, assuming that the carcinomatous condition had not penetrated the outer mural layers, and that all of the growth had been removed. If there was a return of the condition it might more confidently be looked for in the local and pelvic and lumbar glands, with possibly a secondary involvement of the liver.

Dr. DEUTSCH, in closing, said that he thought Dr. Sharpe's theory a little far fetched as the growth had nothing whatever to do with the peritoneal cavity and it could be approached from behind without entering the peritoneum or vagina and if this should return it would not involve the pelvic glands as they were some distance from the growth. One who had attempted a dissection in that region, knowing the space between the coccyx and rectum, would realize that in the case of a tumor adherent to all the structures it would be almost impossible, to dissect out all the cyst wall, and the best that could be done was through curettage. If the curette should leave a great deal of cyst wall, there might be filling up again and a return of the growth.

# REPORTS ON PROGRESS.

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## SURGERY.

In Charge of M. G. GORIN, M.D.

### Overlapping the Aponeuroses in the Closure of Wounds of the Abdominal Walls.

C. P. Noble (*Med. News*). The author believes that this method should be adopted for the closure of all abdominal wounds whatsoever, be they median or lateral. It is equally applicable to operations on the stomach or gall bladder, for appendicitis, or operations in the groin, *e.g.*, for shortening the round ligaments, or for hernia. Since 1897 the author has used it as a routine measure in all cases of this nature. In closing the abdomen it is now recognized that the proper mode of procedure is to unite homologous structures, generally the tier suture being used. From the standpoint of preventing hernia it is necessary to produce such a closure of abdominal wounds as will resist intra abdominal pressure and the integrity of the aponeuroses and fasciæ does more to produce this result than the union of other tissues involved. When we consider that in bringing together the cut edges of the aponeuroses in the usual way we have as a result a cicatricial union of structures only about a line in thickness it becomes evident that they must be weaker than prior to their division. Acting upon this idea it has been my custom to overlap the fasciæ from a third to one half an inch, and the results have convinced me that it is a certain safeguard against hernial sequelæ. Out of 1150 cases only three have developed hernia since 1897. To illustrate the method the closure of an incision in the hypogastrium is described as follows: The peritoneum is first closed by continuous cumol catgut suture. The fat is then dissected from the upper surface of the transverse muscles of the left side of the wound from a third to half an inch. The aponeurosis on the right side is then separated for an equal distance from the rectus muscle. The muscles and fasciæ are then sutured by means of a medium weight chromicized catgut in the following manner: The suture is begun at the lower angle of the wound upon the left side, and is passed from above downward through the aponeurosis and rectus muscle. Then the separated bundles of the rectus muscle are united with a continuous suture until the upper angle

of the wound is reached when the suture is passed from below upward through the aponeurosis upon the left side of the wound. The suture is then passed from below upward through the aponeurosis upon the right side of the wound, and an additional suture is taken above this point to fix the suture and to take the strain off that part which has brought the muscle into apposition. The aponeurosis is then closed from above downward by catching it upon the left side of the wound after the manner of the Lembert suture, and then passing the needle from below upward through the aponeurosis on the right side of the wound. When this suture is drawn taut, it slides the aponeurosis of the right side of the wound upon that of the left side and holds the two in apposition; the amount of overlapping depending upon the distance from the edge at which the needle passed through the aponeurosis upon the left side of the wound. This process is repeated until the lower angle of the wound is reached when the two ends of the suture are tied. In long wounds two or more mattress sutures are placed to take the tension off the lines of the continuous sutures. The fat is closed with continuous suture of fine cumol catgut. The skin is closed with fine cumol catgut suture by the intracuticular method.

### Treatment of Cancer.

Mayo Robinson (*Brit. Med. Jour.*) reports results as follows in the operative treatment of 62 cases of cancer of the breast:

There was no operative mortality.

Twenty-three survived the three year limit.

Twenty are now alive and well at periods up to 12 years after operation. Others operated on within the year are not included in the statistics.

Five died from other diseases without the recurrence of cancer; one, twenty years after operation.

Twenty-eight had recurrence, though in eight, it was after the three year limit. Eight could not be traced.

He believes that in about 50 per cent of cases of cancerous breast operated on early and with thoroughness will survive 3 years, and in 40 per cent to a much longer period, and many may be genuinely cured. He quotes Kocher's results in 97 cases of radical operation for cancer of the stomach. Out of 52 cases operated on between 1881 and 1898 65 per cent recovered and 34 died. From 1898 and 1904 out of 45 cases there were 82.2 per cent recoveries.

## OBITUARY.

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### DR. ROBERT MAURICE KING.

Dr. Robert Maurice King died in St. Louis, May 2, 1905, as a result of uremia following a surgical operation for gall stones. At the time of his death he held the position of Treasurer of the St. Louis Medical Society.

Dr. King was born in Madisonville, Kentucky, June 1, 1843. His early education was obtained at Princeton College, of Kentucky and at Bethany College, of Virginia, where he received the degree of Master of Arts. Soon thereafter he commenced the study of medicine, at first under the preceptorship of Dr. George W. Noel. He entered the Jefferson Medical College and graduated from that school in 1867. He at once began the practice of medicine and for twelve years waited on the sick in Madisonville.

He came to St. Louis in 1876, and soon rose to prominence. In 1878 he was appointed lecturer on Physiology and Clinical Medicine in the College of Physicians and Surgeons. Five years later he became one of the founders of the Beaumont Medical College, and filled the chair of Materia Medica and Clinical Therapeutics.

Dr. King was known as a busy practitioner holding the highest regard of both patients and fellow physicians. He not only took the greatest interest in medical work, but was a constant attendant of the medical societies. His professional cases did not deter him from active work in politics, and twice he was a candidate for representative in Congress on the Democratic ticket.

For thirty years he was a member of the Masonic Order and took many high degrees. As a member of the Legion of Honor he held the position of Supreme Medical Director for five years.

He was married in 1865 to Miss Margaret A. Pinckerd, who, with two sons, survives him.

Dr. King's end came suddenly and unexpected, and his death is greatly regretted by his numerous medical friends.





**DR. ROBERT MAURICE KING.**

*Born in Madisonville, Kentucky, June 1, 1843; Died in St. Louis,  
May 2, 1905.*

*(See Biographical Sketch, Page 380).*



## BOOK REVIEWS.

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*The Courier of Medicine Company will mail, postpaid, any book reviewed, on receipt of price.*

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### Transactions of the Texas State Medical Association.

Thirty-sixth Annual Session held at Austin, Texas, April 25-29, 1904.

This is a goodly sized volume of 648 pages which shows convincingly that our confreres of the Lone Star State hold themselves abreast of the progress in all branches of medical science. There are quite a number of interesting and well-written papers which only limited space prevents us from enumerating. There is one address, however, which we can not refrain from giving special mention because of its general interest. It was written by the President of the Association, Dr. F. E. Daniel, of Austin, and deals with "The Cause and Prevention of Rape—Sadism in the Negro." It is the outcry of a Southerner against the numerous sexual crimes committed by negroes upon white women and children. The writer, after analysing the cause of rape by negroes, suggests as a remedy that the criminal when found guilty should be killed with as little formality as possible and without any religious services; and that, if the rape has been unsuccessful, or in case of sexual perversion, the offender should be subjected to the ablation of the entire genital apparatus, not only the testicles, in order to render a repetition of the act impossible. This "asexualization" should be done by a surgeon upon the order of the court, and there should be a law upon the statute books authorizing it.

We are not acquainted with the conditions in the South which differ in so many respects from our State, and we do not feel competent to discuss the practicability of Dr. Daniel's suggestions. But it occurs to us that crime has, in the history of mankind, never been prevented by force and capital punishment. In order to extinguish brutal instincts, we must lift mankind from the niveau of animals to the sphere of civilization, and it is only by gradual and universal education to higher ideals that we may look forward to a purification of the human race.

### The Surgical Treatment of Bright's Disease.

By George M. Edebohls, A.M., M.D., professor of diseases of women in the N. Y. Post Graduate Medical School and Hospital, etc. Frank F. Lisecki, New York. 1904.

In this book of 327 pages the author embodies his experiences with surgical treatment of chronic nephritis. It has heretofore been universally taught that no surgical operation of any kind should be undertaken in any part of the body of a patient suffering from Bright's disease, unless it was of vital necessity. It was a mere

accident that Edebohls arrived at conclusions directly opposed to the general belief. He performed nephropexy in five cases of movable kidney in spite of the presence of well-marked chronic Bright's disease; the indication for the operation being given solely by the existence, in an aggravated degree, of the usual symptoms due to the mobility of the kidneys. The complete and permanent disappearance of albumin and casts from the urine, and the restoration to perfect and enduring health of three of the five patients led him to adopt an operative treatment in all cases of chronic nephritis as the only means of curing this common and fatal disease. The operative method recommended is decapsulation of the kidney. The removal of the renal capsule is not undertaken in order to relieve tension which, as a rule, does not exist in chronic nephritis, but is performed with the idea of creating new vascular connections between the kidney and surrounding tissues, thus improving the circulation in the diseased organ. In place of the old, impervious capsule, a new capsule is formed which is soft and well vascularized. No contraction or pressure of the new capsule upon the kidney has, thus far, been observed. Only in one case was a second decapsulation necessary on account of an exacerbation of the chronic infection. The only contraindications are advanced cardiac affections, viz., hypertrophy and dilatation of the heart, and retinitis albuminurica. The statistics of Edebohls comprise 72 cases, the first of these was operated upon 12 years and the last 7 months prior to the appearance of the present book. Of these 72 cases, there were 31 cases of chronic interstitial nephritis, 4 cases of chronic interstitial nephritis on the right side and chronic diffuse nephritis on the left, 25 cases of chronic diffuse nephritis and 12 cases of chronic parenchymatous nephritis. Only in 11 cases was the affection of the kidney limited to one side. Of the entire number, 7 died immediately after the operation, while in 9 others the operation proved directly life-saving by rescuing the patient from impending death. In addition to the 7 cases of death from operation, there were 22 cases of ulterior death, none of which were due to the operation. The author sums up, that altogether 13 of the 72 patients received no benefit from operation, while 59 experienced amelioration varying all the way from slight and temporary improvement to complete cure.

Among the 72 cases there were 2 of puerperal eclampsia which were promptly cured of convulsions by renal decapsulation. While we are not prepared to accept this procedure as a routine method in the treatment of puerperal eclampsia, we may admit that if further unimpeachable cases should prove successful we may have in renal decapsulation an additional ultimate resource in the treatment of certain cases of puerperal eclampsia. The immediate benefit in these cases of eclampsia and in other cases, before the establishment of better circulation must, in the author's opinion, be ascribed to the necessary manipulations of the kidney during decapsulation.

The surgical treatment of Bright's disease is too recent to permit of any definite criticism. The results thus far obtained in a disease which otherwise is incurable, are remarkable and should encourage other observers to follow the lead of Edebohls. The book is well written and the histories of the 72 cases are thorough and carefully presented.

The two plates illustrating the vascularization of the new capsule are well reproduced and the general appearance of the book pleasing.



### Merck's 1905 Manual of the Materia Medica.

A Ready-Reference Pocket Book for the Physician and Surgeon. Merck & Co., New York.

The third, or 1905<sup>4</sup> edition of Merck's Manual is a compact little volume, stored with such information—revised to date, as gained by its predecessors the title “a valuable pocket reference-book for the active practitioner.” It contains some notable departures from and additions to the previous issue. The section devoted to Prescription Formulæ, for instance, has been replaced by a list of Therapeutic Indications for the use of the materia medica. A table giving the dosage of frequently-used drugs, chemicals and galenical preparations has been added, and also a comprehensive chapter on urinalysis, dealing with the examination of pathological urine and urinary deposits. There are many other practical features. Names of the chemicals and drugs usual in modern medical practice, with their chief synonyms, physical form and appearance, solubility, percentage strengths and physiological effects, therapeutic uses, modes of administration and application, regular and maximum dosage, incompatibles, antidotes, precautionary requirements; poisoning and its treatment, etc.

### A Text-Book of the Practice of Medicine.

For Students and Practitioners. By Hobart Amory Hare, M D., B.Sc., professor of therapeutics and materia medica in the Jefferson Medical College of Philadelphia; physician to the Jefferson Medical College Hospital; laureate of the Royal Academy of Medicine in Belgium and of the Medical Society of London. Author of “A Text-Book of Practical Therapeutics,” “A Text-Book of Practical Diagnosis,” etc. In one very handsome octavo volume of 112c pp., with 129 engravings and 10 full-page plates in colors and monochrome. Cloth, \$5.00, net; leather, \$6.00 net; half morocco, \$6.50. net. Lea Brothers & Co., Philadelphia and New York, 1905.

Dr. Hare possesses in a remarkable degree that happy faculty of selecting those practical details in the diagnosis and treatment which will be especially helpful at the bedside. His text-books on practical therapeutics and practical diagnosis are deserving in popularity, but inasmuch as we now possess several text-books on practice, the question arises as to the need of this book. Has the author shown that special power of discrimination in this work which will make it especially valuable?

He follows the usual method of treating the diseases, beginning with typhoid fever. An unusual number of rare forms, foreign and tropical diseases are described, although most of them receive scant attention. The descriptions are thoroughly up-to-date everywhere. The most recent literature has been utilized, enforced by the author's personal experience. Especially valuable are the articles on pneumonia and typhoid fever. Some diseases, like Banti's disease should have received more consideration.

Few pediatricists, while acknowledging that large doses of antitoxin are necessary in nasal and laryngeal diphtheria, will agree that “these are the forms in which rapid absorption of the toxin of the disease takes place.” On the contrary, in both forms it is the rule for very little toxin to be absorbed. The lymphatics of the nasal and laryngeal musous membrane are poor in absorptive power.

Evidently, the author's large experience does not extend to malaria or he would have given a much more varied treatment for patients who can not take quinin, or in whom it causes toxic symptoms. Then, again, there are cases in which succedanea must be used.

Much more interest in modern researches in the sugar metabolism in diabetes might have been taken, although the essentials are given.

We believe this volume will find a welcome place on the shelves of the busy practitioner who wants a good practical text-book on medicine.

### **Fifth Annual Report of the Cancer Laboratory**

Of the New York State Department of Health, conducted at the Gratwick Research Laboratory, University of Buffalo, for the year 1903-4.

A very valuable monograph by Prof. G. N. Calkins, Ph.D., on the Cell-Inclusions in Cancer, appears in this report. It is illustrated by three colored plates and will serve as an admirable basis for further research. Students of medicine can readily apprehend the difficulties that beset the biologist who endeavors to find micro-organisms among these numerous forms of cell inclusions.

### **The Doctor's Recreation Series.**

Charles Wells Moulton, general editor. A. J. Saalfeld Publishing Co., Akron, Ohio, Chicago and New York. 1904.

Volume IV.—A Book About Doctors. By John Cordy Jeaffreson, author of "The Real Lord Byron," "The Real Shelley," "A Book About Lawyers," etc. 1905.

There can be no doubt that this is a very fitting work to place in the "Doctor's Recreation Series." Although this classic was written in 1860, it is surprising how few physicians are familiar with it. This is probably the most valuable of all the works of this English author. He was the son of an eminent surgical author but after commencing the study of medicine changed his plan of life, graduated from Oxford and finally studied law. He devoted himself mainly to semihistorical writing, and wrote several novels.

"The Book About Doctors" easily ranks above all others in merit. It has the earmarks of a masterpiece, and besides being written in a charming style, and containing barrels'-full of humor, it is a perfect mine of information regarding the habits of physicians in the Eighteen and beginning of the Nineteenth Century.

The anecdotes throughout the volume illustrate forcibly the different phases of the physician's life. Next to the Bible, Shakspear, and Montaigne, the stories about doctors should be on the shelves of every physician for early morning reading. A short reading will make the day more cheerful.

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### **Announcement.**

Of this issue we mail 5,000 extra copies with a view of increasing our subscription, see subscription blank and special offer opposite page.

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## CLINICAL NOTES.

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### Strictly Ethical.

Clifton Springs Sanitarium, N. Y., is one of the oldest, best equipped and most renowned sanitarium in the country. It has its own electric, gas, and ice plants, eleven cold storages, and a farm of 400 acres for furnishing milk, cream, butter and eggs for the table.

The new and elegant building costing over \$300,000, 250 feet long and 6 stories high, fire-proof, with Solarium on top, situated in a beautiful park of 65 acres, is well-ordered, and thoroughly sanitary. It has an Annex 300 feet long, and also an Annex No. 2 and cottages for overflow patients.

The bathing department is unsurpassed. Stimulating, tonic, eliminating, and sulphur spring baths, salt, soda, needle, mercurial, Russian, Turkish, Nauheim, electro-thermal, electro-chemical, Charcot douche, steam, medicated packs, hot air, compressed air, hand massage, mechanical massage—Taylor system, rest cure, daily gymnastics under a professional instructor are among the many means and appliances here for treating the medical, and surgical cases that come.

There are ten regular physicians, members of the county, state, and

national medical societies, whose medical articles have appeared from time to time in the leading medical, and surgical journals of the day. Most of these physicians have been on trips for observation, study and practice abroad and are abundantly qualified to treat any case received into the Institution. Tubercular, contagious, and insane patients are not received.

The surgeon, educated in Philadelphia, Johns Hopkins, and Germany is well-known among surgeons and physicians.

The eye and ear department, the static electric, the gynecological, the pathological, and dispensary are conducted by regular physicians whose entire time is devoted to their special service.

The Nurses Training School is incorporated by the State of New York, and registered by the Board of Regents and is a three years course.

In the new building is a beautiful and commodious Chapel lighted with one hundred and fifty gas jets, and is for stated religious services conducted by the regular chaplain, and for musicals, lectures, health talks, etc.

Every Tuesday, or Thursday evenings there are concerts, lectures, or appropriate entertainments in the gymnasium adjoining for the culture and recreation for all who are able to attend.

### Senile Pneumonia.

A prominent physician in lecturing recently on a case of senile pneumonia at the Philadelphia Hospital, said :

"Hot flaxseed poultices, well made so as to retain their heat for four hours, were kept about the thorax during the day and at night were replaced by a lamb's-wool jacket, for the better part of a week. It is important when poultices are used they should be well made and should retain their heat for four hours, in order that the patient shall not be continually disturbed to change them. Fever patients need rest, not only sleep at night, but rest during the day. It is rarely wise to wake the patient, either for food, for medicine, for bath, or for any other application. Save in exceptional instances, sleep will do more to favor recovery than the agent for whose sake it is interrupted."

The time was when the above statements would have received the hearty indorsement of all thoughtful medical men. But this is not the ox-cart, candle or horse-car age. We are living in the twentieth century. The old things must be laid aside. They are valuable only as antiques.

We have the cleanly and convenient electric light instead of the greasy candle. Why not Antiphlogistine, made of cleanly and aseptic materials and capable of mainining a uniform degree of temperature for twelve to twenty-four hours or more, instead of the bacteria-breeding, soggy, clammy linseed and other poultices?

Most up-to-date doctors say: "Yes, we know all about Antiphlogistine and use it regularly as routine treatment in all cases where inflammation

is present and a local remedial agent is indicated."

Picture an individual with temperature  $104^{\circ}$  to  $105^{\circ}$ , pulse 120 to 140, respiration 40 to 70. If any one craves and absolutely needs rest and sleep it is such a patient. A linseed poultice affords a very poor means for the continuous application of moist heat, nothing more. It can not be sufficiently well made to retain a temperature for more than half an hour. Antiphlogistine need not be changed oftener than once in twelve to twenty-four hours, during which time a comparatively uniform temperature is maintained. Refreshing sleep is invited, and not hindered. It stimulates the cutaneous reflexes, causing a contraction of the deep-seated and coincidently a dilation of the superficial blood vessels. At the same time it attracts or draws the blood to the surface—flushes the superficial capillaries, bleeds but saves the blood.

The circulation is thus favorably affected. The aggravating symptoms are almost immediately ameliorated. Congestion and pain are relieved, the temperature declines, blood pressure on the overworked heart is reduced, the muscular and nervous systems are relaxed and refreshing sleep is invited.

### An Experience With Peptenzyme.

I have recently had occasion to prescribe Peptenzyme in a case of vomiting of pregnancy in a woman, age 35 years, a primipara. She suffered intensely from nausea immediately after eating, having been unable to retain scarcely any food for nearly three weeks. Various digestive compositions were employed without the least



benefit, some even seeming to aggravate the trouble. I put her on Peptenzyme, two tablets after each meal. I never saw a drug act so promptly nor so uniformly as has Peptenzyme. I do not believe there is another agent of its class on the market that approaches it in therapeutic value. I have also used the remedy in gastric and atonic dyspepsia with absolutely positive results. It does not wear out like many of the so-called digestive compounds, especially some of the stuff on the market that is sold to the physicians at 25 cents per ounce and which is composed principally of sugar of milk and other cheap agents to add bulk with just sufficient pepsin to give them the characteristic smell. My advice to the profession is to use Peptenzyme whenever and wherever such an agent is indicated. In the vomiting of pregnancy it is sometimes best to give one tablet one-half hour before eating and one immediately afterward. In indigestion where there is malnutrition and consequently tissue waste without repair, Peptenzyme will act in a most agreeable and satisfactory manner. When given to the habitual drinker after a "booze" it will assist in correcting the gastric trouble and enfeebled nerve condition that almost robs him of a conscious individuality.—*Medical Council*.

#### Salacetin.

Salacetin is a combination, with heat, of salicylic and acetic acids and phenylamine from which the irritating and depressing principles have been removed. It is analgesic, antilithic and slightly antipyretic. Chemically pure codein is free from any tendency

to check secretions or induce a drug habit; the objectionable features of commercial codein being due to the presence of morphia. The combination of salacetin and codein in Sal-Codeia Bell is remarkably efficient in relieving all inflammatory and painful conditions of the respiratory and the abdominal tract.

#### Cod Liver Oil.

Various preparations of Cod Liver Oil have appeared in the market during the past ten years, but for palatability and efficiency none of them has surpassed Hagee's Cordial of Cod Liver Oil Comp. This preparation has become a standard with many doctors all over the country, and the results achieved are most satisfactory. The freedom from grease and the fishy odor makes it peculiarly acceptable to patients with weak stomachs.—*Southern Medicine and Surgery*.

#### Broughton's Sanitarium.

The gratifying success attained by Dr. Broughton, of Rockford, Ill., in his sanitarium work, while due in a large measure to his extensive experience in this important line of work, is doubtless made easier on account of the remarkably effective accessories which he has brought to his aid.

Two years ago, Dr. Broughton purchased one of the most delightful suburban estates to be found in Illinois, comprising a large mansion surrounded by beautiful grounds, twelve acres in extent, all being within easy access from the railroad stations of Rockford.

The patient fortunate enough to secure admission to this institution could

hardly have the suggestion brought to him that he was an inmate of an institution. There are twenty four rooms available to patient, each being furnished entirely different from all the others. This family hotel—for such it might be more correctly designated, has electric lights, hot and cold water, a thoroughly modern heating plant, luxurious parlors and waiting rooms, and thorough organization in every detail—all associated with the minimum amount of essential restraint. Naturally, the patients are pleased with their surroundings, all of which adds to the effectiveness of the treatment.

#### **Grand Prize.**

Wm. R. Warner & Co. Pharmaceutical Chemists of Philadelphia, pioneers in the Manufacturing of Sugar Coated Pills, announce that they have been honored by the highest award, the Grand Prize for Pharmaceutical Preparations at the Louisiana Purchase Exposition. The Company have been the proud possessors of fifteen World's Fair Medals before this last award.

#### **Heating the Sick-Room.**

Recent experiments by a prominent Brooklyn physician have established the fact that a temperature of 65 to 68°F. with a relative humidity of 60 per cent produces much more comfortable and healthful conditions than when the temperature is much higher and the air dry.

As a suggestion, in every sick-room a large, shallow dish should be kept filled with water containing about 10 per cent of Platt's Chlorides and a towel moistened in this dilution hung up and occasionally wafted about, to

secure constant moistening and purification of the air.

Where a furnace is used, the water-box should be regularly filled and a little Platt's Chlorides added to it. Where steam heat, hot water radiators, Baltimore heaters, coal oil or gas stoves are used, a pan with some water containing a little Platt's Chlorides should be kept over or under the heating arrangements.

#### **Treatment of Pneumonia.**

Pneumonia is nowadays considered a general infectious diseases, due to a special germ, and not as was formerly believed, a local condition resulting from exposure to cold. It is therefore of the utmost importance that once it appears in a household every precaution should be taken to prevent its spread to other members of the family. As the germ is carried through the air, this can not be accomplished by fluid disinfectants; an unirritating and non-poisonous antiseptic which is sufficiently powerful to destroy the infection and yet can be freely breathed by the patient is required. There is only one safe and efficient agent of this kind, and that is Vapo-Cresolene. Experiments by a member of the Pathological Department of Yale University have demonstrated its high germicidal power. Its vapor permeates the air of the sick-room, destroys the infection at its source, and when inhaled by the patient allays cough and irritation in the air passages, promotes expectoration, and thus aids materially in bringing about recovery.

## CLINICAL NOTES.

### EPILEPTICS:

#### ACCEPTED TREATMENT DURING AN ATTACK.

By A. W. LATIMER, M.D., St. Louis, Mo.

The first indication is to give freedom to the respiratory apparatus by loosening the clothing about the neck, turn the head to one side, so the tongue does not fall back and interfere with free access of air to the lungs; if the breathing is stertorous or the patient comatose, the tongue should be drawn forward promptly and retained in that position. Apply cold water to the face should it become covered with perspiration.

Pressure on the carotid artery or arteries is a decided benefit in many cases in curtailing an attack especially in partial and idiopathic epilepsy due to brain diseases or peripheral irritation where the arteries are very full and the tension is great.

Always place the patient in a position so that he will not injure himself by falling or striking against objects—recumbent position, and retain the limbs and head.

#### TREATMENT OF EPILEPSY.

The two modes of treatment of the various forms of epilepsy, which chiefly deserves to be noticed, are the surgical and internal medication. Brilliant results have been secured by some operative procedures, but the great majority have been of no avail and we confine this article exclusively to the internal treatment.

All authorities on the treatment of epileptic patients concede the supreme efficacy of the combined bromid solution reinforced with belladonna, hyoscyamus and cannabis indica, the last three drugs in various increasing or decreasing strengths to meet the indication of each individual case.

Laborers in the field of Medicine, with or without co-laborers, have conceived theories based upon seemingly sound and reasonable logic, and wandered away from the accepted treatment of epilepsy and given drug after drug, singly and in combination for weeks and years, for patient after patient, only to find their labor a failure and results *nil*, and return to the old yet new bromid treatment with increased confidence and security that the number of patients relieved will be increased and the great majority will be materially benefited.

Cosidering the great number of post mortem examinations, the careful macroscopical and microscopical examinations made of subjects that had epilepsy for years, and yet no pathological condition demonstrated to warrant either the *la petit* or *la grand mal*. The only rational conclusion that can be drawn is that epilepsy is in the great majority of subjects of purely reflex origin. That origin is the complex problem that confronts



the physician in treating patients of this character—to isolate the source of irritation, and in controlling the attacks with the combined bromids, give in addition a medicine that will correct the local irritated parts that are the source of the manifestations.

In cases associated with anemia, cod liver oil, arsenic, ferrum or maltine should be given; if constipated, leptandrin, podophyllin, euonymin, chiretta creosote and cascara sagrada; if reflex irritation from the genitourinary organs, buchu, juniper and potassium acetate; if from the uterus and appendages, viburnum prunifolium comp. and ferri iodid, etc.

Epilepsy can be treated successfully by the general practitioner with the above-mentioned drugs combined with the bromids, where the special neurosis demands their use. It is unnecessary to say when syphilis is the cause of epilepsy the use of kali iodid should be included in the treatment and frictions with the mercurial ointment as in treating this special disease.

If the liver is engorged from the influence of malaria, sulphate of quinin should not be given as it is usually a bad remedy to employ in epilepsy, often more hurtful than useful. Arsenic should then be given for the sequela of fever and ague.

Iron is said to be contraindicated as it was supposed to be harmful rather than useful. In those cases allied with or caused by chlorosis or pronounced anemia the good effects of iron or maganese are often very marked, and it is seldom that any bad effect arises especially if the syrupus ferri iodid or the citrate of iron is used. The latter is less powerful against a deficiency of blood globules, but is less apt

to give rise to attacks than most ferruginous preparations, and the medicine can be continued for almost an indefinite period.

In case of continued or repeated attacks the administration of an anesthetic may stop the tendency to the reoccurrence of fits. The condition of the tongue should then be watched carefully, if, as is usual, the fits are very violent, this organ falls back over the larynx and increases the state of asphyxia which contributes to the return of the convulsions. The tongue is to be drawn forward and any accumulation of frothy or bloody mucus in the throat should be removed. Anesthetics have some power of curtailing if not stopping at once the tendency to a return of the fits.

After the convulsions have ceased the bromids should be continued regularly for at least two or three years after the last fit. As the suspension of the treatment may cause relapse, in case of relapse, the treatment must be repeated. The entire benefits from previous treatment will be entirely lost during the suspension even though for a short time.

### Neurosine vs. Morphine.

POSITIVELY NO MORPHINE IN

NEUROSINE.

Neurosine is the most powerful neurotic attainable, quieting the nerves and producing natural sleep. Physicians should never prescribe or recommend any product which the laity could obtain from the druggists to produce sleep that contains morphine or other dangerous drugs. There is hardly a day but what fatal results occur (to those using stimulants to excess and other causes), who resort to



neurotics to steady their nerves and produce sleep. It is hard for one to believe that manufacturing chemists would be so unprincipled as to compound morphine without indicating same in formula.—*American Medical-Surgical Journal*.

Paragraph from original article, "Two Cases of Chloral Poisoning.—One Fatal," by Dr. B. J. Clark, Barnesville, Ga.:

"One had taken only four grains, and would have died had not prompt treatment been given. The last one had been taking fifteen grains as a dose for several days, and ten grains killed him that night. Now shall we use such a drug at all? I say not. No, not for worlds will I ever give chloral or any of the many solutions on the market which we all know contains it." \* \* \* I conclude in the language of one of my old teachers: 'For God's sake, gentlemen, don't ever give chloral, or any accursed nostrum that contains it.'"

*Neurosine contains no morphine, opium, chloral or cocaine.*

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#### Codeine.

Codeine, from Kodeia (poppy head) is an alkaloid of opium, discovered by Robiquet in 1832. It occurs in white crystals which are soluble in water, alcohol and ether. It is sedative and analgesic, but when given alone is in no way comparable in efficiency with morphia. The chemically pure product which, according to the U. S. Dispensatory, is rarely found, has the advantage of not inducing a drug habit or of checking secretions. The ordinary codeine of commerce often produces these re-

sults, when not inert, because of the morphia which it contains and to which it usually owes whatever virtue it possesses. The refiners and uses of codeine find that the analgesic and sedative properties of pure codeine are so greatly, but unaccountably, increased by its combination with certain remedies with similar properties that this firm has ceased marketing codeine uncombined with such other ingredients as would insure a satisfactory result. For example: One-quarter grain of codeine combined with 5 grains of salacatin will relieve rheumatic and neuralgic pain more effectually than one-quarter grain of morphia alone. That amount of codeine would produce scarcely any perceptible effect, and the five grains of salcetin taken alone would be nothing like as efficient as the morphia. We note that Bell & Company of New York and Chicago, the firm to which we refer, makes a Tablet of this combination which they call Sal-Codeia Bell. There is an advantage in employing this preparation because their codeine is absolutely chemically pure and under no circumstances either checks secretions or induces a drug habit; while if the combination is extemporaneously prescribed, the commercial codeine would probably be used and the eliminative properties of salacatin counteracted.

#### The Treatment of Eczema.

Characterized by pustular inflammation, great itching and exudation, this disease is, perhaps, of all dermatoses, most frequently encountered by physicians.

So far as the constitutional treat-

ment goes, the aim of the physician should be to get the patient into the best state of health he can, and thus the treatment may vary with the individual.

In the more important local therapy, reduction of the inflammation and exudation is indicated. First, the Eczematous crust must be removed; this was formerly done by soaking the entire surface in almond oil, or by applying starch poultices.

Soap tends to irritate the skin and retard the recovery. There is little doubt but that ordinary soap does; yet the crust can be removed by the use of Resinol Soap and water without any fear, since it, by reason of properties allied to those of the Resinol Ointment, exerts a benign and soothing influence, and thus not only benefits the patient, but facilitates the work of the physician.

When the crust has been removed, Resinol Ointment should be applied, and repeated every six or twelve hours according to the irritability of the Eczematous surface. Relief will be immediate.

It is better to spread the Ointment on strips of thin muslin, gauze or lint. In Eczema of the head, it will be found easy to devise a hemlet or mask.

Resinol is not a newly-born remedy, but has been prescribed, and continues to be prescribed by the leading physicians in the United States and Canada, who testify by consistent use, their active belief in its merits.

#### A Substitutor Convicted.

Kress & Owen vs. Cruttenden.—On the 8th day of December, Police Magistrate Denison, in the Police

Court, registered a conviction against Thos. Cruttenden, Jr., who keeps two drug stores in Toronto, one at the corner of Howard and Sherbourne streets, and the other at the corner of Gerrard and Sumach streets, for infringement of the trade mark, duly registered in Canada, owned by Kress & Owen Co., 210 Fulton street, New York, "Glyco-Thymoline." The evidence conclusively showed that the defendant had put up a preparation under the name of "Glyco-Thymol," in bottles almost identical to those of Kress & Owen Co., and with labels worded *verbatim et literatim* to those of the original manufacturers. Cruttenden, through his solicitor, gave an undertaking that he would stop all manufacture of Glyco-Thymol and destroy all labels, bottles, etc., connected with the sale of that preparation. The firm of Kress & Owen Co., are deserving of congratulation over the result of this case. They had every reason for prosecuting Cruttenden, as it was nothing short of dishonest, and contrary to the law, that he should stoop to such practices and try to rob a firm who, by strictly ethical advertising (solely to the profession) and the expenditure of about \$175,000 per annum, have secured a large sale of Glyco-Thymoline, a preparation found valuable in catarrhal conditions of the mucous membrane.—Editorial, *Canadian Journal of Medicine & Surgery*.

#### Utility of Coca Wine.

One objection to the use of alcohol medicinally is its commonly accepted action as a stimulant, with a supposed period of depressing reaction. It is, however, agreed that the combination of Coca with alcohol in a mild wine—

such as Vin Mariani—affords a nutritive stimulant from which there is no reaction. Before the influence of the alcohol has passed the sustaining action of the Coca will have commenced, and a period of tone supervenes which sustains the system. It is because of this peculiar property that Vin Mariani is of such value as an adjuvant in all convalescence where a mild stimulant is indicated.

M. Mariani was the first to introduce a wine of Coca to the medical world nearly half a century ago. Although he has freely published his formula to physicians, and though many pharmacists have tried to duplicate its product, it has never been successfully imitated. The reason must be obvious for just as the French vineyards have had an advantage of centuries, so Mariani has had the advantage of priority and the acumen to maintain his laboratories to the refinement of a skilled manufacture. Thousands of physicians the world over have recognized this merit, have felt proud to endorse it with their patronage.—*The Coca Leaf*, March, 1903.

#### Thiocol in Typhoid Fever.

Thiocol, or potassium guaiacol sulfonate, has given good results in intestinal tuberculosis and in various other forms of intestinal ulceration. This well-known fact has induced Dr. W. A. Molena to try the effects of thiocol in typhoid fever. During an epidemic of this disease he administered the drug to eleven patients. The observations he made were to the following effect: 1, Thiocol is well borne by all patients without exception. 2, It has a good influence on the stools, rendering them more nor-

mal and less frequent. 3, The fever assumes a remittent or intermittent type, the medium temperature becoming lower. 4, The concomitant bronchitis is ameliorated.

The thiocol was given in doses of 8 grn. (0.5 Gm.) four to eight times a day, dissolved in water, with syrup of orange peel as a corrigent. All the eleven patients recovered. The results, says the author, are favorable without being marvelous, but they are such as to encourage a trial of the drug on a larger scale.—*Rev. de Therap.*

#### The Respiratory Link.

The truth of the old adage that a "chain is only as strong as its weakest link" is forcibly illustrated in medicine. The constitution of a patient may in most of its relations be normal; yet the chain of health is impaired by one function which is the seat of more or less constantly recurring disturbances.

The most frequent form of this weak physiologic link that confronts the physician is that manifested by the patient who, with the advent of winter, suffers from repeated congestions and inflammations of the respiratory organs. It may be that at all other times of the year the individual is, as far as indications go, in a good state of general health; it is, however, more commonly the case that the skilled diagnostician is able to recognize an impairment of constitutional vigor, which is in reality the cause of the respiratory disturbances. Present-day scientific teaching emphasizes that it is unwise to treat these patients with expectorants, cough syrups and respiratory sedatives; these latter remedies



are at the best but palliative and do not reach the cause of the disturbance. It is more rational to endeavor to strengthen this weak respiratory link by restoring its integrity, and the proper way to do this is by treatment directed to the real causative factor, which is an atonic condition of the system.

The experience of many years has taught that these constantly recurring respiratory disturbances may nearly always be prevented or at least reduced in frequency and severity if Gray's Glycerine Tonic Comp. is administered throughout the winter. If, however, this precaution has not been observed and the patient is already suffering from his regular winter cough and bronchial or pulmonary distress, treatment with Gray's Tonic is still the most efficient.

The manner of the action of the remedy in these cases is two-fold: first of all it overcomes malnutrition by stimulating the torpid nutritive functions to assume normal activity; as a consequence the patient's constitutional vigor is strengthened and incidentally the relaxed atonic condition of the respiratory mucous membrane is eradicated.

The second effect of Gray's Tonic in these cases is upon the local disturbances of the respiratory mucous membrane—it has a direct antiphlogistic and tonic influence upon the disordered circulation; it thereby relieves engorgement and restores tone to the relaxed blood vessels.

Gray's Tonic is to be preferred in the management of these acute and chronic respiratory conditions because it gives the patient relief from the very start and if persisted in, overcomes the

condition completely. It strengthens not only the weak respiratory link but also the entire chain of constitutional vigor.

#### Acted Like a Charm.

I used Satyria in a case of inflammation of the ovaries and it acted like a charm. I also find it an excellent medicine for irritation of the bladder (especially in female cases) also in catarrhal conditions of the bladder and kidneys, nephritis, gonorrhea and sexual atony. It gives me pleasure to recommend Satyria to the medical profession as a medicine that will fully and thoroughly meet their wants in all cases where indicated.—J. A. Mead, M.D., Worcester, Mass.

#### A Perfected Food.

In treating anemia is it not true that our first thought, and that to which our instinct should naturally lead us, is a normal blood standard? That there is a deficiency of iron in the blood in most forms of anemia, is, of course, indisputable; and to endeavor to supply this lack by the administration of iron seems but a common sense procedure. This practice would be sufficient if anemia were, in reality, nothing more than a condition of iron deficiency; but the profession realize now that the underlying costive factor is a disturbance of the process of nutrition and cell proliferation, and that iron poverty is but one manifestation of this disorder. Ample proof of this fact has been presented to every doctor when he has observed how anemic conditions persist in spite of the long continued administration of the various preparations of iron. Here, then,



iron preparations must be supplemented by such remedies or by such a remedy as has the ability to awaken the depressed nutritive and cell proliferating process. To stimulate, tone up and supply perfect nutrition in all anemic conditions, I have found Bovinine to meet every indication par excellence.—John Griggs, M.D.

#### Where True Quality Is Shown.

The excellence of Scott's Emulsion is recognized by the highest authority. The *London Lancet* said of it: "The value of the hypophosphites combined with cod liver oil, especially in wasting diseases and debilitated conditions, is well known. In addition to these constituents, Scott's Emulsion also contains glycerine, which is well recognized as assisting very materially in the absorption of oils and fats. We have examined the preparation with care, and find that it fulfills all the requirements and presents all the conditions of a very satisfactory emulsion. In appearance and consistence it is not unlike cream, and under the microscope the fat globules are seen to be of perfectly regular size and uniformly distributed. In fact, the preparation, microscopically examined, presents the appearance of cream. So well has the oil been emulsified that even when shaken with water the fat is slow to separate, the liquid then looking like milk. The taste is decidedly unobjectionable and is pleasantly aromatic and saline. We had no difficulty in recognizing the presence of the hypophosphites in an unimpaired state. The Emulsion keeps well even when exposed to wide changes of temperature. Under the circumstances just described the Emul-

sion should prove an excellent food as well as a tonic."

#### Pneumonia Following Typhoid.

J. B. W.,—white, male, aged 30 years, was recovering from a severe case of typhoid. On the 36th day his temperature was normal. On the 39th day it again began to rise and in a few days had reached  $104.5^{\circ}$ , the pulse 140. A severe cough and consolidation of the right lung told the story of a complicating pneumonia. After the long and severe drain upon his resources incident to the typhoid his condition presented a very alarming, not to say, desperate situation.

Counsel was called and it was decided that his only hope lay in the generous use of Antiphlogistine. A "Large" package was secured and heated by placing the sealed can in hot water. The temperature of the room was brought up to about  $80^{\circ}$ . A cotton-lined cheese-cloth jacket, open upon the shoulders and in front was prepared and warmed. Uncovering the patient's thorax, Antiphlogistine, as hot as could be borne, was spread upon the skin about one-eighth inch thick over as much of the thoracic walls as could be reached (back, front, side and over the shoulder). This was covered with the jacket. Turning the patient over, the other side was dressed in the same way. The jacket was then drawn together over the shoulders and down the front with stout thread. It is proper to say the entire contents of the  $34\frac{1}{2}$  oz. package (Large) was used for the one dressing.

The effect was surprisingly prompt. In a few hours, the temperature had declined to a point of safety and the

pulse to 120. A similar dressing was applied fresh every twenty-four hours. The improvement was steady and marked and in six days the patient was again convalescent, thanks to Antiphlogistine.

The brilliant outcome in this case taught me the importance of careful attention to detail in the use of Antiphlogistine. Like ever thing else worth while it must be properly used if the best results are to be obtained. — M.D., Florida.

### Reaping Ptomains.

A great many people seem to think that it matters little what kind of material goes into the building of the human structure!

They feed on thorns and expect to pick roses!

Later, they find they have sown indigestion and are reaping ptomains.

It's a wonderful laboratory, this human body. But it can't prevent the formation of deadly poisons within its very being.

Indeed, the alimentary tract may be regarded as one great laboratory for the manufacture of dangerous substances. "Biliousness" is a forcible illustration of the formation and the absorption of poisons, due largely to an excessive proteid diet. The nervous symptoms of the dyspeptic are often but the physiological demonstration of putrefactive alkaloids.

Appreciating the importance of the command, "Keep the Bowels Open," particularly in the colds, so easily taken at this time of the year, coryza, influenza and allied conditions, Dr. L. P. Hammond, of Rome, Ga., recommends "Laxative Antikamia & Quinine Tablets," the laxative dose of which is two tablets, every two or three hours, as indicated. When a cathartic is desired, administer the tablets as directed and follow with a saline draught the next morning, before breakfast. This will hasten

peristaltic action and assist in removing, at once, the accumulated fecal matter.

### Special Offer.

#### Combination Fountain Pen and Thermometer.

Two indispensable articles to every physician. A Laughlin 14-k. gold fountain pen, in opposite end of the pen-holder is a clinical thermometer which can be detached in two seconds, the holder (which is made of the finest quality of hard rubber, in four simple parts) acts as a case, preventing any danger of thermometer breaking.

Regular price, \$5.00. We have a limited number which will be sold at \$2.50 each, postpaid, securely packed, with dropper and directions. Address Courier of Medicine Company, 318 N. Garrison Av., St. Louis, Mo.

### A Rare Bargain.

#### Combination Battery.

We have a number of these batteries, which are intended for the general practitioner. Gives faradic and galvanic current for treatment. Illuminates diagnostic lamps, also do all ordinary cautery work. The principal recommendation and one in which it excels all existing models, is that it will do this work perfectly, having advantage of being portable. Weight 15 pounds. Dimensions 12x9x8 inches. If directions for its use are followed, the manufactures guarantee it will do the specified work without fail.

Regular price, including sponge, grip, electrodes, cords and one diagnostic lamp-cord, \$30.00. We offer same for \$15.00, express prepaid.

Address, Courier of Medicine Company, 318 N. Garrison Av., St. Louis.

## CLINICAL NOTES.

### The Treatment of Convulsions in Children.

By HARRY TYLDESLEY, M.D., Central City, Ky.

Member Kentucky State Medical Association; Member Muhlenburg County Medical Society; Assistant Surgeon I. C. Railway, etc.

From the earliest time of life until the seventh or eighth year convulsions are seen with great frequency. They create the greatest consternation in the bosom of the mother and relations of the child.

Convulsions are due to a multiplicity of causative factors. Great excitement often is a cause of convulsions. Often severe convulsive seizures follow fright. Convulsions arise in the course of many diseases, especially those attended with febrile action. In the course of eruptive fevers, pneumonia, and all affections where high temperature is a symptom, there is always danger of convulsions ensuing. In tubercular meningitis, and cerebrospinal meningitis and other diseases of the brain or spinal cord, convulsions are very common concomitants.

Indigestion, constipation, dentition and exposure to the sun's rays are sufficient to induce the oncoming of convulsions.

Other causes which it would be impossible to enumerate at length are sufficient to produce convulsions.

The physician called to see a child in convulsions is expected to institute such treatment as will mitigate and relieve the convulsive seizure.

The inhalation of chloroform, and the giving of a bath in warm water,

are the most certain and speedy means of bringing about relaxation. As soon as I arrive on the scene I have the child stripped and put into a tub of warm water, and it is kept there until relaxation is secured. This is manifest in a great many instances by the convulsive twitching ceasing and the child going into a gentle, sound sleep. The chloroform may be inhaled while those who are assisting the physician are holding the child in tub. As soon as it is possible to get the child to swallow I give it by the mouth a dose of Neurosine. To a child 5 years old I give a half teaspoonful mixed with water. But I do not wait for consciousness to be regained to give the Neurosine. Generally the first thing I do, if the infant can not swallow is to give a dose of Neurosine by the rectum.

The patient is in this way brought under the influence of the drug while we are at work bringing about a relief of the present convulsion. Neurosine overcomes the congestion of the brain that is the cause of the convulsions, and in that way we insure our patient against a second attack.

The Neurosine must be given at regular intervals after the attack in order that the brain may not again become congested and a new attack su-



pervene. This is to be continued until the child is normal. The adult dose of Neurosine is one to two fluid drams, and it can be readily adjusted to the age of the child.

Neurosine contains in each fluid dram 5 grains each potass., sod., and ammon. bromids; zinc bromid  $\frac{1}{8}$  grain, ext. bellad. and ext. cannab. ind. each,  $\frac{1}{64}$  grain; ext. lupuli 4 grains; fl. ext. cascara 5 min.; with aromatic elixirs.

In the treatment of eruptive fevers and other diseases where there is restlessness and insomnia I give Neurosine regularly as a preventive of convulsions, and to give the patient rest. The giving of Neurosine is highly beneficial because it not only prevents convulsions, but it enables the patient to sleep and that increases his strength, and consequently his resisting powers are enhanced. I believe the prognosis of many diseases are in this way greatly changed for the better.

A. C., aged 18 months. This little child was taken in convulsions, and her mother sent for me in great haste. I found her in a seizure when I arrived. I took some Neurosine from my case and gave the infant a half dram per enema. I then put her in a tub of warm water and let her inhale chloroform in the meanwhile. The infant soon went to sleep. I had the mother to give the Neurosine regularly for several days—until the fever and catarrhal pneumonia from which the infant suffered had been cured. The infant is now ruddy and very healthy.

G. B., aged 2 years. This infant had measles. The other children in the house had the disease, but had such light attacks that it did not amount to anything, and they sent for no physi-

cian when he was taken. When I was called he was in a severe convulsion. He was given Neurosine per enema and bathed and allowed to inhale chloroform until he was relaxed. Then he was given the remedy regularly until he had recovered from the measles. After this treatment was instituted the little patient progressed without incident, to recovery.

A. M. G., aged 12 years, had scarlet fever which was attended with high temperature. One afternoon she was seized with a convulsion which was severe and prolonged, and had bitten her tongue considerably when I got there. I put her on Neurosine, a half teaspoonful every three hours until the patient was convalescent. After beginning with the Neurosine my patient slept well, ceased to be nervous and restless and made an uneventful recovery.

B. C., aged 5 years. This child had eaten a great deal of raisins and had a severe convulsion. I gave it rectal injection of Neurosine, had her to vomit freely. This caused the child to go into a peaceful sleep and next morning it was to all intents and purposes well.

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#### Guarantee For Five Years.

We guarantee the satisfactory working and wearing qualities of this Perfection Douche outfit. However, this does not signify they will not last a lifetime, for we conscientiously believe they will. An exceedingly valuable and intensely interesting work on "Sex, Health, Mutual Relations, Diseases" and other important information (intensely interesting and valuable), containing 508 pages, profusely



illustrated, is included without extra charge when the Douche and Protector are both ordered. The full page cuts are highly finished. The book alone is worth the price of the Douche.

We pay all the mail charges on the Perfection Douche and on the large work on Sex, Life and Health, for 25c. extra.

References.—Phila. Hospitals; Dr. Chas. Turnbull, Drs. Solis Cohen and S. S. Cohen, John Wanamaker's Store, Chas. Lentz & Sons, Smith, Kline & French Co., Shoemaker & Busch, Whitall, Tatum Co., all of Phila.; B. C. Taylor, D.D., and Rev. John Miles, Chester, Pa.; editors of any health magazine. Individual references are never printed or sent except by permission. Address, Ladies' Specialty Dep't, The Physicians Standard Supply Co., 117-125 N. Broad St., Philadelphia; Pa.

#### Eczema 20 Years.

I have used Germiletum with great success in several cases of eczema. One being an old case of 20 years' standing of eczema of the breast, which never yielded to treatment before, disappeared as if by magic. The intense itching was relieved at once. An equally brilliant result in infantile eczema, child aged 7 months. The eczema developed on third day after birth. The case had made the "rounds" of the physicians and the use of Germiletum was the second time the case was in my hands. I used Germiletum diluted 1 to 5 parts as a wash to be followed by citrine ointment 1 to 6 parts. Happy results in two weeks; the skin had not looked anything like normal since the third day after birth. This child was the

worst I ever saw, the entire body being covered with eczema excepting the hands and feet. There are now scars on the forehead where the deep cracks were. The buttocks became so raw and sore the diapers had to be oiled to keep them from adhering, and to be plain it was a pitiful sight to see. I sent word to the family to bring the child to me after finding the result in the first case, and the first night, for many months, rest to mother and child was had after using Germiletum." A. R. Anneberg, M.D.,

Templeton, Iowa, March 17, 1905.

#### Sal-Codeia Bell.

Owes its efficiency in relieving pain to the *combination* of Salacetin and Codeine. This combination is far more efficient than codeine alone, and much more satisfactory than morphia in relieving neuralgic pain, because it stops the pain as quickly and thoroughly as morphia and causes no nausea, depression, constipation, or drug habit. Its use has trebled in the past year. A comparison of its efficiency and unobjectionability with that of morphia or codeine alone, in any neuralgic condition, will convince you of its superior value.

#### Catarrh.

I am using Germiletum daily and find it most valuable in inflamed mucous membrane, etc. I will use it freely in all my catarrh cases.

Dr. S. P. Harned,

Brooklyn, N. Y., March 13, 1905.

Germiletum is superior to anything I have ever used in catarrhal affections. G. C. Hays, M.D.,

Williamsport, O., March 13, 1903.

### Facial Neuralgia.

I used Neurosine on myself for a terrible case of facial neuralgia. I had been ill for a week. Neurosine acted like a charm. I never saw anything work nicer for aggravated neuralgia.

Dr. M. H. Curtiss,

Kirkville, N. Y., March 11, 1905.

### Medical Books.

It affords us pleasure to call the attention of our readers to advertisement of C. V. Mosby, medical book dealer, of this city, on first cover page. Doctors desiring purchasing late editions of medical book are recommended to Mr. Mosby for fair treatment.

### Well-Merited.

The University of Halle, Germany, has conferred upon Dr. Willy Merck, member of the old house of E. Merck, Darmstadt, established in 1668, a very high distinction, namely, the honorary degree of Doctor of Medicine "in recognition of numerous meritorious contributions looking to the advancement of the therapeutic side of medicine."

### Vin Mariani.

Vin Mariani is a proprietary preparation only in name. It stands for originality and reliability, representing just what it is claimed to be. Perfection is attained under expert possibilities with machinery which is the outgrowth of long years of specialism confined exclusively to Coca products. Numerous indorsements, from physicians in various parts of the world who are using Vin Mariani in daily practice, praise its unique qualities as a tonic and restorer of nervous and

muscular strength. Vin Mariani was used by the profession fully twenty years before cocaine was known in medicine. In fact, through this preparation physicians were made familiar with the properties of Coca, and this was the original and only available form of employing the remedy. The popularity of Vin Mariani has led imitators to foister upon the profession artificial substitutes concocted by adding cocaine to wine. Such base frauds masquerading as Coca Wine—a title originated by M. Mariani, have done grave evil and tend to unjustly cause condemnation of all Coca preparations as but false products.

### Epilepsy.

I have used Neurosine in a case of epilepsy where the patient was having spells ever other day, and one bottle has stopped them entirely.

Dr. G. F. Ewing,

Vernon, Col., March 3, 1905.

### Special Offer.

#### Combination Fountain Pen and Thermometer.

Two indispensable articles to every physician. A Laughlin 14-k. gold fountain pen, in opposite end of the pen holder is a clinical thermometer which can be detached in two seconds, the holder (which is made of the finest quality of hard rubber, in four simple parts) acts as a case, preventing any danger of thermometer breaking.

Regular price, \$5.00. We have a limited number which will be sold at \$2.50 each, postpaid, securely packed, with dropper and directions. Address Courier of Medicine Company, 318 N. Garrison Av., St. Louis, Mo.

## CLINICAL NOTES.

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### CATARRH.

By A. W. LATIMER, M.D., St. Louis, Mo.

Late Physician to the City Hospital.

Catarrh has assumed such proportions that every practitioner of medicine must necessarily equip himself to meet the increasing and onward march of this tenacious disease.

Catarrh seldom abates after a few acute attacks to an extent that sufferers will relinquish the treatment instituted, more especially if they find relief from its use—the treatment should always be altered to suit the different stages of the disease.

Catarrh permeates every phase and grade of life—from the hovel to the palace, and in every clime, more troublesome at certain seasons of the year, however.

Acute catarrh and acute rhinitis or coryza, due most often to a slight cold, is usually the beginning of the tenacious chronic catarrh.

Inhalations of hot, dry air—irritating vapor, dust and the emanations of certain drugs, are other sources of acute coriza.

Predisposition is an important factor in masses, some persons being affected by the least exposure to any of the exciting mediums.

Children are particularly subject to it; while the aged enjoy comparative immunity. A scrofulous taint seems to render the mucous membrane susceptible to frequent attacks and, in persons of rheumatic diathesis, it is often present.

It occasionally appears as an epidemic through atmospheric perturbation.

If seen early an attack of acute catarrh can generally be cut short. If severe, the patient should be kept in a warm room and small doses of tincture opii deodor. frequently administered internally, and the nose and throat gently flushed with—

Germiletum,

Aqua dest.,     -     -     -     -     -     -     aa ℥iv

M. Ft. sol. Sig.—Use in an Acme atomizer every two hours.



There are so many mild cases that require only the spray as above-directed, and the severer forms I have found do infinitely better with this spray than with any other application—unguentum, powder or spray.

The spray can be used with Germiletum alone if the mucous surface is not over-sensitive. Germiletum is an astringent antiseptic—stimulating to the vasomotors of the membrane antagorius, the vasomotor paresis, thus counter-acting the vascular engorgement and transudation. It is very serviceable throughout the affliction in all stages.

Simple chronic rhinitis, chronic nasal catarrh, chronic coryza and chronic inflammation of the nasal mucous membrane are generally the result of repeated acute attacks. The success of the treatment depends greatly upon the proper recognition of the cause of the trouble in each individual case.



Follicular Tonsillitis treated by continuous Spray of Germiletum, 10 minutes each sitting and 4 or 5 times each day. Prompt and uninterrupted recovery.

Cleanliness is of prime importance, especially when the affection is due to local irritation by extraneous matter, but great circumspection should be used in selecting the proper instrument. A too powerful stream would act as a local irritant and while performing its office as a cleansing agent would increase the inflammatory process and encourage hypertrophic changes. The atomizer is undoubtedly the best instrument for the purpose, provided its spray be coarse enough to bathe the membrane thoroughly and wash away accumulated discharges.

As to the solution to be employed preference should be given to one combining with its cleansing properties that of reducing local congestion.

R<sub>x</sub> Germiletum, - - - - - 3vj

Sig.—Use in a continuous spray atomizer twice daily for two to four minutes.

Germiletum has proven itself to be very effective in the fulfillment of these conditions. It is non-toxic, non-irritating and by its alkalinity can be used



continuously for an indefinite period—by its astringency causes the membrane to gain its normal state, it acts effectively, promptly and pleasantly as a rapid cure.

### Hypertrophic Nasal Catarrh and Hypertrophic Rhinitis.

Hypertrophy of the nasal mucous membrane occurs generally as a result of frequent attacks of acute rhinitis or as a complication of chronic rhinitis. Frequently, from the use of improper snuffs, solution of nitrate of silver or too forcible application of the douche and, in many cases, idiopathically.



Follicular Pharyngitis treated with saline aperient, and a gargle of pure Germiletum, dessertspoonful, and swallowed, 5 times a day. All the follicles and inflammation disappeared in 10 days—well.

For those cases where operative measures are not necessary the continuous spray of Germiletum for cleansing and an efficient antiseptic astringent as in other forms of catarrh is an essential part of the treatment. When the degree of hypertrophy is moderate and the discharges are soft—satisfactory ablation of the parts can be conducted through the anterior nares, but when the hypertrophic process has so far progressed as to cause marked narrowing of the cavity the spray will not reach the mucous surface behind the bulging portions and Germiletum solution must be applied posteriorly. A very satisfactory instrument for the purpose is Hall's bulb syringe. Its stream can be so nicely regulated that any degree of force can be employed, while any quantity of Germiletum diluted with equal parts of distilled water can be injected at a given time.

Germiletum is very pleasant to the patient, it is effective in removing accumulated discharges, does not irritate the parts and is a very effective antiphlogistic.

### A Valuable Vaginal Douche Combination.

A word is due the merits of this Perfection Douche, which Hospitals, Sanitariums, the medical profession and nurses are recommending and prescribing in preference to other douches.

This new outfit is accurately designed, scientifically constructed of highest grade hard rubber, light in weight and convenient to operate. It may be combined for large or small vaginal openings and may be adjusted to the required length. Because of its simple and natural construction it may be easily taken apart for cleansing and sterilizing, having no complicated parts where germs may lodge and breed. The quick whirling copious spray is without accompanying force or unnatural suction to injure in sensitive conditions, and cleanses thoroughly and quickly (half a minute per quart of water). The extra spray connection (known as the Douchette) for internal hot bath, as well as rectal purposes, is the latest and most satisfactory improvement to the Douche. A tapered nozzle for womb purposes (for physician only) may be connected on one end of the spray stem for special womb treatment.

The Perfection Douche absolutely prevents leakage when in operation, by its splendid outflow device, protecting rim and perfect adjustment. It is very easy and comfortable to use, without undressing, in any desired posture.

Our readers interested in the above invention will do well to communicate with the manufacturers, The Physicians' Standard Supply Co., Philadel-

phia, Pa., who are making special introductory offers. They furnish a neat illustrated booklet (no charge) upon request.

### Catarrh.

I am using Germiletum daily and find it most valuable in inflamed mucous membrane, etc. I will use it freely in all my catarrh cases.

Dr. S. P. Harned,

Brooklyn, N. Y., March 13, 1905.

Germiletum is superior to anything I have ever used in catarrhal affections. G. C. Hays, M.D.,

Williamsport, O., March 13, 1903.

### The Pas-Avena Chemical Company

Has acquired the established business and plant of the Avena Pharmaceutical Company, 223 East 80th Street, New York City, and will continue the business of manufacturing and introducing to the medical profession exclusively, the well-known product Pas-Avena, at the same address.

We would suggest of those readers who have not yet used Pas-Avena in their practice, that they write to the Company for literature and samples.

Pas-Avena is a powerful but harmless soporific, sedative and anodyne. Formula will be furnished physicians upon request.

### The Value of Advertising.

Some people, having climbed the ladder of success, seem inclined to kick it down. "There is room at the top." The result of our own Medical Journal advertising has been away beyond our expectations and we are willing and glad that any owner of a good preparation knows it.

We had been making Sal-Codeia Bell for seven years before we began this advertising. Its cost had prohibited general sampling. We knew that if we could convince physicians of its value that it would be used. We tried to tell them what it was, what it would do, how to use it, and where to get it. In six months the demand had trebled. Today we are literally kept busy increasing our facilities for making it. If you have a *good* thing and advertise it properly, you will succeed, and any advertising of a worthless one will result, as it should, in failure.

#### Eczema 20 Years.

I have used Germiletum with great success in several cases of eczema. One being an old case of 20 years' standing of eczema of the breast, which never yielded to treatment before, disappeared as if by magic. The intense itching was relieved at once. An equally brilliant result in infantile eczema, child aged 7 months. The eczema developed on third day after birth. The case had made the "rounds" of the physicians and the use of Germiletum was the second time the case was in my hands. I used Germiletum diluted 1 to 5 parts as a wash to be followed by citrine ointment 1 to 6 parts. Happy results in two weeks; the skin had not looked anything like normal since the third day after birth. This child was the worst I ever saw, the entire body being covered with eczema excepting the hands and feet. There are now scars on the forehead where the deep cracks were. The buttocks became so raw and sore the diapers had to be oiled to keep them from adhering, and

to be plain it was a pitiful sight to see. I sent word to the family to bring the child to me after finding the result in the first case, and the first night, for many months, rest to mother and child was had after using Germiletum." A. R. Anneberg, M.D.,

Templeton, Iowa, March 17, 1905.

#### Urinalysis.

A most useful departure from the usual method of promotion of manufactured products is being instituted by Bioplasm Company. This manufacturer evidently believes that the more use he can be to his patron (the practicing physician) the more useful the doctors can be to him. This Company has undertaken to equip each of its patrons with a most ingenuous outfit for the analysis of the urine "at the bedside," and with it presents a complete pocket manual containing the latest technic and reactions. The motive is perhaps the greatest departure, for it is claimed that in morbid conditions which change the composition of the urine (and few abnormal states of the system do not), and where bioplasm is indicated, as it is in all errors of metabolism, the therapeutic property of bioplasm is shown by the return of the urine to its normal composition. This is certainly an unusual motive. The manufacturer says to the doctor, "I ask you to subject my product to a trial, and I claim that its results may be traced in the urine, therefore, I present you, gratis, the necessary apparatus to determine such changes in the urine, which gives you every facility to prove me a liar, if I am." Surely, here is a manufacturer who believes what he says. Anything



that will stimulate urinalysis as an aid to diagnosis and treatment should be encouraged. Bioplasm Company is setting a worthy example to manufacturers in this respect.

### NEUROSINE.

#### Neurotic, Anodyne and Hypnotic.

Dose.—Teaspoonful in water 3 or 4 times a day.

*Neurosine* is really almost a specific in Epilepsy, Unexcelled in all forms of Neuroses, Chorea, Hysteria, Migraine, Delirium Tremens, Asthma, Spermatorrhea and Whooping-Cough. A natural sleep producer. The efficient Neurotic, best calmative and heart regulator in cases of Grip and Pneumonia. The unexcelled combination is one part of *Neurosine* to two parts of *Dioivburnia* in the following:

Menopause, Eclampsia, Menstrual Colic, Melancholia, Anemic Nervousness, Female Neuroses, Nervous Prostration, Uterine Congestion, Reflex Cough, Ovarian Neuralgias, Delayed Catamenia, An Efficient Diuretic, Non-Descriptive Cases, Asthma Sexualis, Subacute Rheumatism, Uterine Irritability, Rheumatic Sciatic Pains, Lumbago, Relieves all False Pains, Neurasthenia from Uterine Diseases.

The Dios Chemical Company, St. Louis, Mo., will furnish free full-size bottles of *Dioivburnia* and *Neurosine* to Physicians paying express charges.

#### The Carabana Prize Contest.

To The Editor.—Believing that many of your readers are keen critics of the advertising columns of your valued journal, it has occurred to us that they might be willing to enter into a little contest which we are organiz-

ing and for which we shall award \$50 in cash prizes, as follows:

A committee of 3 physicians will award, not later than July 1st, a first prize of \$25, a second prize of \$15, and a third prize of \$10, to the doctor sending in, prior to June 1st, the five best reasons why physicians should and do daily prescribe our Carabana aperient water. The five reasons should be stated as concisely as possible, not exceeding twenty-five words each. All that is necessary for your readers to qualify will be that they are personally familiar with the various uses to which carabana water is put, and that they write from personal experience.

In order to ensure fairness, physicians competing must sign their reasons with a "nom de plume," and in a separate envelope inclose their professional card, on which the "nom de plume" should also appear. Address: Carabana Contest, 2 and 4, Stone street, New York. Yours very truly.—Geo. I. Wallau.

#### Special Offer.

#### Combination Fountain Pen and Thermometer.

Two indispensable articles to every physician. A Laughlin 14-k. gold fountain pen, in opposite end of the pen-holder is a clinical thermometer which can be detached in two seconds, the holder (which is made of the finest quality of hard rubber, in four simple parts) acts as a case, preventing any danger of thermometer breaking.

Regular price, \$5.00. We have a limited number which will be sold at \$2.50 each, postpaid, securely packed, with dropper and directions. Address Courier of Medicine Company, 318 N. Garrison Av., St. Louis, Mo.



# BOOK FREE

You will please mail, postpaid, to my address, as per your offer on on advertising page 18.

First Choice.....

Second Choice.....

Third Choice.....

## SUBSCRIPTION BLANK.

COURIER OF MEDICINE CO.,  
St. Louis, Mo.

Mail the **St. Louis Courier of Medicine** to me, one year from date, as a trial, for which I will pay \$1.00.

NAME.....

STREET NO.....

CITY.....

DATE.....1905

STATE.....

## CLINICAL NOTES.

### Epilepsy.

Since Brown-Sequard formulated his celebrated mixture of the bromids they have everywhere been regarded as the "sheet anchor" in the treatment of epilepsy, and whatever progress has been made, has only been in the line to additions of these efficient remedies. Hammond (Diseases of the Nervous System), says: "The treatment of epilepsy rests solely on experience. \* \* \* Among medical remedies the bromids stand pre-eminent, and should be tried first in every case." He adds: "Herpin, several years ago, called attention to the salts of zinc in the treatment of epilepsy. \* \* \* I have used the lactate, and still more recently, the bromid, with very definitely beneficial results." (Pages 714-716).

Lauder Brunton says of the bromid of potassium: "It is especially beneficial in epilepsy, and by its use, the convulsions can almost always be lessened, if not entirely stopped." (Therapeutics, etc., page 521).

Allen McLane Hamilton says of the treatment of epilepsy: "No general remedies have been of so much service as the bromids, especially those of sodium, ammonium and potassium, and since their introduction, about twenty years ago, the number of cures have greatly increased, and the prognosis improved; a sour knowledge, derived from experimental therapeutics, has broadened." (Reference Hand Book, Vol. II, page 708).

The literature on this subject is so vast that volumes might be filled with quotations from standard authorities only, but our desire is to make the brief-

est referenc to these with the view of calling attention to our elegant preparation, Neurosine, composed of the usual bromids, together with bromid of zinc, and the pure and reliable extracts of cannabis indica, belladonna, henbane, lupuli and cascara sagrada. Since Trousseau announced the efficacy of belladonna in *petit mal*, it has held high rank as an admirable addition to the bromids. Of cannabis indica it is well said: "In morbid states of the system it has been found to cause sleep, allay spasms, compose nervous disquietude and relieve pain. In this respect it resembles opium, but it differs from that narcotic, in not diminishing the appetite, checking the secretions, or constipating the bowels." (U. S. Disp., page 351). It is only reliable when properly prepared from a pure specimen.

Voison maintains that of all drugs the bromids of potassium and zinc are the ones which have done the greatest service. Germain Sée, Constantin Paul and Dujardin-Beaumetz agree that bromid of strontium is less active. The potassium salt may be given to the adult up to 8 or 10 grains daily, and Féré has gone as high 20 grains.—Delmis, in *New York Medical Record*.

Neurosine is the most powerful neurotic attainable, anodyne and hypnotic. A reliable and trustworthy remedy for the relief of hysteria, epilepsy, neurasthenia, mania, chorea, uterine congestion, migraine, neuralgia, all convulsive and reflex neuroses. The remedy *par excellence* in restlessness of fevers. Producing natural sleep; causing no detrimental after-effects, as it contains no opium, morphin, chloral, cocain, or other deleterious drugs.

*Formula of Neurosine.*—Each fluid-dram represents 5 grains C.P. bromids of potassium, sodium and ammonium;  $\frac{1}{8}$  grain bromid of zinc;  $\frac{1}{64}$  grain of pure extract belladonna, henbane and cannabis indica; 4 grains extract lupuli; 5 minims fluid extract cascara sagrada, with aromatic elixirs.

### The Neuroses.

There is scarcely a writer of prominence upon this subject to-day, who does not lay great stress upon the importance of early and prolonged treatment of the primary manifestations of an almost infinite variety of nervous affections, with the view of preventing the constant development of still graver diseases.

Neurosine is composed of drugs recognized by the profession as of standard medicinal properties. Unexcelled in hysteria, epilepsy and neurasthenia. Neurosine is presented in a most permanent and palatable form, an elegant and efficient combination of well-known and long-tried remedies, the virtues of which, in the diseases and conditions indicated, there is absolute unanimity of expression among all observers and authors upon this subject.

The paroxysm of epilepsy is alleviated in the administration of Neurosine and permanent relief obtained by its persistent use, where there are symptoms of neurosis, Neurosine should be administered in teaspoonful doses in a wine glass of water, three times a day, so long as such symptoms continue. In epilepsy double this dose should be given, and before the time the paroxysm is indicated the dose should be increased. Many severe cases of epilepsy have been relieved entirely by persistent use of Neurosine alone. In all forms of female neuroses, Neurosine should be combine with Dioivurnia :

Neurosine..... $\tilde{z}$ ij                      Dioivurnia..... $\tilde{z}$ iv

M. Sig.: Dessertspoonful every three hours, in hot water.

**Sal-Codeia Bell.**

Salacetin is a combination, with heat, of salicylic and glacial acetic acids and purified phenylamine. It is strongly antilithic and analgesic and slightly antipyretic, and is gradually superseding salicylic acid and salicylate of soda in the treatment of rheumatism and other uric acid conditions. It causes neither stomachic nor renal irritation. Combined with pure codeine, in the proportion of 5 grains of Salacetin to  $1\frac{1}{4}$  grain of codeine, it relieves painful lithemic conditions more thoroughly than morphia and without the objectionable results produced by opiates generally. Pure codeine neither checks secretions nor induces a drug habit. Salacetin and chemically pure Codeine Sulphate are combined in the proportions mentioned in tablet called Sal-Codeia Bell, by Bell & Company, manufacturing chemists, of New York and Chicago. They report best results from its use when taken dissolved in hot water, for rheumatic, neuralgic, and other uric acid conditions.

Don't fail to take advantage of Bell & Company's offer on ad page 9 this issue.

**Nebulizers, Syringes, Spirometers.**

Of important interest to physicians everywhere are instruments and supplies of the Physicians' Standard Supply Co., 117 N. Broad Street, Philadelphia, Pa., manufacturers of Nebulizers, Vaporizers, Douches, Air Pumps, Nebulizing Fluids (for nose, ear, throat and lungs), Spirometers, rubber goods and Tablets. The Nebulizers can be operated with hand bulb, foot pump or air compressor, and are extremely convenient for home as well

as office treatment; these instruments are the highest development of the application of the medicine in the form of vapor. The Physicians Standard Formulary, free on application, contains the prescriptions of eminent physicians in this country, among them the famous Hay Fever Formula given by Drs. Cohen and Turnbull of Philadelphia.

The Perfection Vaginal Syringe, but recently placed on the market has had a phenomenal introductory sale, and is now recognized as the most perfect and scientific vaginal douche manufactured. A unique descriptive booklet is furnished gratis; also interesting and valuable literature relating to their Pocket Vaporizer, now being ordered by the thousand, the Simplex Clock Spirometer, a most valuable aid and exerciser for deep breathing, and the Woman's monthly protector in two styles. Very liberal terms and discounts may be obtained on application.

**No More Poulticing in the U. S. Army.**

In a recent notification by the Surgeon General of the U. S. Army, it is asserted that all the good results from poultices can be obtained in a more cleanly way by the use of wet hot compresses. Hence the order to the army surgeons to drop linseed and linseed meal from army medical requisitions.—*Virginia Medical Semi-Monthly*.

We highly approve of this order as far as discarding poultices made of putrescible and bacteria-breeding materials is concerned, for that is what has been done by all up-to-date physicians in private practice, but we can



hardly recommend the substitute offered. We supposed that every one in this enlightened age was using Antiphlogistine in all such cases because of its advantages over everything else in permanency, efficiency and cleanliness. Compare Antiphlogistine, renewed but once a day, with hot compresses renewed every twenty minutes and we can not imagine any one using compresses when Antiphlogistine is available.

#### Dr. Pettey's Retreats.

We take pleasure in directing attention to the work of Dr. Geo. E. Pettey, Memphis, Tenn., who has recently completed the treatment of 800 cases of drug addiction at his Memphis Retreat. He has also lately opened a branch of his work at Denver, Col., and another at Oakland, Cal., each of which is under the care of one of his assistants. These institutions were opened and are being maintained solely for the purpose of treating the Alcohol and Narcotic Drug Addictions by methods based upon the original investigations of Dr. Pettey and first published to the profession by him in 1901. (See *Therapeutic Gazette*, Oct., 1901).

It is stated upon good authority that the method of treatment introduced by Dr. Pettey removes these addictions from the list of almost incurable diseases and renders them the most certainly and readily curable of all the chronic ailments. In thus extending his work, the doctor is making an organized effort to rescue from the irregulars a class of patients who have been neglected by the profession generally until they have almost ceased to apply to them for relief.

These institutions are conducted upon strictly ethical lines and we bespeak for them the most hearty professional support.

#### Lung Trouble.

Hagee's Cordial Cod Liver Oil Compound is very highly recommended for all cases of lung trouble, as a restorative in children as well as adults, after pneumonia and la grippe. In bronchitis in old people it is excellent. It is palatable, easily assimilated, and is a good tissue builder. Often where other preparations of cod liver oil have been taken without the least benefit, Hagee's will be found to do the work.—*Kansas City Medical Index-Lancet*.

#### Proper Dilution.

To avoid waste and ensure best results, the following dilutions of "Platt's Chlorides" may be relied upon.

For disinfecting discharges dilute with 4 parts water.

For sprinkling floors, etc dilute with 10 parts water.

For moistening clothes, etc. dilute with 10 parts water.

"Platt's Chlorides" is an odorless, colorless solution of the metallic chlorides that have proven most reliable and safe for sickroom and household use. It is put up in quart bottles covered with a distinctive yellow wrapper bearing explicit directions for its use.

It is manufactured by Henry B. Platt at New York and Montreal.

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Germiletum is superior to anything I have ever used in catarrhal affections. G. C. Hays, M.D.,

Williamsport, O., March 13, 1903.



# BOOK FREE

You will please mail, postpaid, to my address,  
as per your offer on advertising page 20.

First Choice.....  
Second Choice.....  
Third Choice.....

## SUBSCRIPTION BLANK.

COURIER OF MEDICINE CO.,  
ST. LOUIS, MO.

Mail the **St. Louis Courier of Medicine** to me, one year from date, as  
a trial, for which I inclose \$1 00.

NAME.....

STREET NO.....

CITY.....

DATE..... 1905

STATE.....

## CLINICAL NOTES.

### Progress of Antiseptics.

We are acquainted with the facts, figures and statistics upon the subject, and we are familiar with all of the heated discussions that led up to the overthrow of the fallacy of the theory of spontaneous generation. We rejoice in the complete triumph of the germ theory of disease. And why should we not be enthusiasts upon these subjects since the practical benefits due to these scientific triumphs have startled the civilized world and showered blessings upon humanity, which until now were beyond the ken of all save the inspired seers and prophets who clothed them only in labyrinthian metaphor. They are chemists, and while their lives and labors are devoted to the investigation and study of the science, they are ever on the alert—if they may be permitted to coin a significant term—to *Listerize* their labors; that is, to apply their knowledge to practical and profitable ends. This is what Listerism means. This, in fact, should be the end, the aim, the goal of all human effort and energy.

The Dios Chemical Co. in the effort to apply their scientific investigations to useful and practical ends, some eight years ago evolved a valuable anti-septic dry dressing which they elected to name in honor of Prof. Senn, Senn-

ine and to which they still revert with modest pride. In the then existing state of scientific knowledge Sennine quite fully met every reasonable requirement and to this day justly holds the chief place in the manifold medical and surgical applications where dry dressings are demanded.

During these eight years the sciences of chemistry, pharmacy, and bacteriology have made progress. The Dois Chemical Co. have tried to keep pace with this progress and in conformity to their determined purpose to shape their labors to useful and practical ends, after long experimentation, they now present to the medical profession a new antiseptic whose composition embodies the very latest discoveries, while its combination in such eligible fluid form, they make bold to claim, is peculiar to themselves. The name Germiletum is their effort to at once convey some hint to the thoughtful physician of its qualities and applications—(letum or death to germs). This property of Germiletum is known from its chemical constituents but best of all from repeated and continuous demonstrations following its practical application under all the extreme conditions present in their laboratory work as well as private and clinical uses.

Upon the market today there are "a thousand and one" antiseptics, many with high-sounding and far-fetched chemical formulæ, others urging acceptance upon the grounds of their nativity, while for all of them the claim is urged that they are "good," "better," etc. The Dois Chemical eschew all such claims and make bold to say that Germiletum is the best antiseptic now challenging professional favor. This claim is a strong one and is couched in no ambiguous language, to prove which, by scientific discussion, would necessitate an array of facts and formulæ wholly too technical in character to comport with the scope and design of this article. Germiletum is the best antiseptic today upon the market, not for the reason that it combines all the qualities of eligibility that others have, but because it is the most eligible one of all. It is the blandest of all, imparting such sensation in a higher degree than any other. It is thoroughly germicidal; and while the almost universal acid character of antiseptic preparations has served to popularize the mistaken idea of this being necessary, Germiletum is not acid but slightly alkaline in chemical reaction. Therefore, this property must at once commend Germiletum as specially valuable in general and also of superior merit in a variety of special applications. To free a perfect germicide of all corroding acids and at the same time retain its germicidal properties is no small desideratum. This they have accomplished and are satisfied with their work. They challenge comparative tests in practical lines, and know full well that the present state of scientific attainment does not supply a complete answer to the question of just how medicines act and empiricism still holds an important place in therapeutics, and are aware that in any controversy or matter of doubt the truth is only reached through a final appeal to intelligent practical experience. Before this tribunal is presented the claims of Germiletum in full assurance of satisfactory results wherever intelligently employed.

Germiletum is not only designed to fill all the requirements of an antiseptic and gericide in both major and minor operations, but its peculiar

blandness—which can be proven by a simple application to the hands—renders it of special merit to the gynecologist and obstetrician and constitutes it the very best antiseptic for all toilet purposes as well.

Germiletum is almost a specific in Catarrh and Eczema.

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## Progressive Uterine Diseases.

By the Late I. N. LOVE, M.D.

It has been believed, almost universally, by the medical profession, that modern civilization has developed a variety of uterine and obstetrical diseases unknown, or at least not diagnosticated, until within a comparatively recent period. The women of uncivilized peoples, and those of the lower orders among ourselves, are exempt from many of the ailments of their more refined sisters; we may, therefore, say uterine diseases can be regarded as progressive; whatever may have been the development of female disorders, owing to modern methods of living, a greater advance has been made in the treatment of these troubles; no department of medical science has surpassed gynecology in its strides forward, and women, appreciating this fact, do not now as in former times, hesitate to apply for relief. All reflecting practitioners grant that local has, in many instances, overshadowed general treatment; that the latter is equally important there can be no question.

From time immemorial many valuable drugs have been employed in domestic practice for the various ailments of the female sex, yet, strange as it may seem, it is only within the last few years that the attention of medical men has directed itself to many of these remedies. Of their value individually there has been no doubt, but they could not be obtained in an available form for administration; hence they were neglected. However, the absolute necessity for some preparation directing its action to the uterus and appendages, and to aid local treatment has led to various efforts to combine certain valuable remedies in a palatable and at the same time efficient form. Some of these, when mixed in liquid compounds, were found to precipitate so rapidly that a resort was had to *colored bottles* as containers, vainly hoping thus to disguise the failure of amateur chemists. Others, unable to secure eligible chemical solutions, have adopted that indigestible form of pills, which as a method of administration, is proverbially disgusting, while the entire absence of the alcohol, wines, and ethers, so essential to the assimilation of the bitter tonics, is clearly apparent to the thoughtful practitioner.

The skill of an accomplished pharmacist and thorough chemist, supplemented by an extensive professional experience of years, was required to combine the ingredients of Dioivurnia in a palatable, effective and permanent form, and at the same time enhance their therapeutical action.

During the past six months I have had my attention drawn to a remedy that goes under the name of Dioivurnia, the formula of which is given by the proprietors, it being composed of equal parts of the fluid extracts of vi-



burnum prunifolium, viburnum opulus, dioscorea villosa, aletris farinosa, helonias dioica, mitchella repens, caulophyllum thalictroides, scutellaria lateriflora, (each fluid ounce represents  $\frac{3}{4}$  dram each of the fluid extract.

The proper dose is for adults, from a dessert to a tablespoonful three times daily after meals.

In urgent cases with much pain it should be given every hour or two in a half glass of hot water. I am free to say that with the exception of the "black haw" (a most valuable remedy) I was not familiar with the component parts of the *Dioiviburnia*, but having read the emphatic indorsements of Drs. J. B. Johnson and L. Ch. Boislincere, of St. Louis, two of the most eminent professors and practitioners of the city, as well as that of Dr. Tuholske, I was induced to give the compound a fair and thorough trial, and I am convinced that in *Dioiviburnia* we have a valuable addition to our armamentarium in our battle against the enemies of the noblest work of God—Woman.

### Treatment of Menstrual Disorders.

George S. Walker M.D., of Staunton, Va., says: The connection between disorders of menstruation and disorders of the brain and nervous system has long been established facts. The dependence of the psychic functions of women upon the menstrual function, the effects of the menopause upon mentality, are all subjects that have received the attention of clinicians for many years. (Thus, Sutton and Giles, in their work on the Diseases of Women, point out that "If in such a case menstruation comes on again, the mental condition often improves.") It is a well-known fact, correlated to the peculiar connection between the mind and the sexual apparatus, that amenorrhea is not infrequently met with in the insane. The problem as to how to treat insanity is one of the most difficult in therapeutics; and in the modern conception of this treatment of all agents that tend directly or indirectly to further the equilibration of the mental functions have a legitimate place.

In an institution like the hospital with which I am connected, we natu-

rally come face to face frequently enough with the question of treating the amenorrhea that is noted as an accompaniment of mental disease, and for a long time I have been experimenting with various therapeutic agents recommended for the treatment of menstrual disorders without obtaining perfect satisfaction from any, until I tried the method of treatment which I am about to describe.

What I was looking for was a safe and efficient emmenagogue, which gave positive results in cases of amenorrhea, dysmenorrhea, and suppressed menstruation, without either exciting or depressing the patient, without causing any disturbances on the part of the digestive tract, or the urinary tract, such as are met with in the use of most of the medicines classed as emmenagogues.

The ordinary *Apiol* of commerce was simply a mixture of impure principles obtained from parsley by extraction. The question was, therefore, to obtain such a preparation of *Apiol* that eliminates the impurities that do the harmful work of the ordinary preparation. A number of chemists, in various countries have tried to pu-



rify Apiol with varying success, but finally, within the last few years a pure product was obtained. It seems that the preparation which contains the purest product obtainable, which was prepared by the new process mentioned, is a pharmaceutical compound known as Ergo-Apiol (Smith). Seeking, as I said, preparation of Apiol which would give satisfactory results in amenorrhea, dysmenorrhea, and suppressed menstruation, especially in the insane, and that would not produce any undesirable after-effects, I determined to try Ergo-Apiol (Smith), a liquid substance dispensed in gelatin capsules, which contains the pure Apiol described above, and in addition to a combination of emmenagogues that immediately appealed to me as calculated to enhance the efficiency of the whole remedy, namely ergot of rye, oil of savin and aloin.

I selected a series of cases in the hospital, each of which was characterized by a more less pronounced menstrual disorder of some standing, and administered no other medication for the treatment of the disordered menstruation than Ergo-Apiol.

Case 1.—Miss V. F., aged 21 years. Was admitted June, 1902. She said that she had not menstruated for nearly a year, and attributed her suffering in body and mind to this fact. She was despondent, and on the verge of committing suicide. The reflex effects of the uterine disturbance were also manifested by the derangement of function in nearly all the organs. There was entire loss of appetite and a practical cessation of digestion, accompanied by pain after eating. In October, 1901, I began to give her two capsules of Ergo-Apiol (Smith) three

times a day until after her expected periods, without any effect. During the month of November I gave her two capsules three times a day, and continued the treatment until December 12, 1901, when her menstruation returned in a perfectly normal manner. No unpleasant after-effects whatever were noted at any time during this treatment. She improved both mentally and physically during the time of taking this emmenagogue, and her condition was so remarkably ameliorated that she was discharged cured when the menstrual function had been re-established.

Case 2.—Miss M. B. S., aged 24 years, has been suffering from amenorrhea for a year, which persisted in spite of all treatment. She was melancholy, had a very poor appetite and other disturbances due to her suppressed menstruation. In November, 1901, I began giving her two capsules of Ergo-Apiol (Smith) three times a day. I continued this treatment without any appreciable effect, except that the patient seemed to feel more comfortable, and at certain times during the month she experienced the subjective sensations accompanying the onset of menstruation. Finally, her menses returned on April 21, 1902. The menstruation was perfectly normal. One week before the next succeeding period I gave her two capsules of Ergo-Apiol (Smith) three times a day, and when the time came for the onset of the flow it appeared in a normal manner. The remedy was continued in doses of one capsule three times a day, while the flow lasted. Since the re-establishment of her normal function the patient has gained both mentally and physically,

and regained her mental balance and her usual cheerfulness, so that she was discharged, cured.

Case 3.—Miss L. D. C., aged 15 years. A girl of fine physique, who had first menstruated at the age of nine years, but always very irregularly. The menstruation disappeared for a year and then returned. When admitted she was very irregular with a scanty flow that lasted but one day, and was accompanied by severe pain in the head, loins and pelvis. A week before her expected period in January, 1902, I began giving her one capsule of Ergo-Apiol (Smith) three times a day. At the end of one week her menstruation returned, and lasted four days, the flow being normal in amount and accompanied by very little pain. The same treatment was pursued in February, with similarly good results, and from that time on the function was fully established and remained so. There was a marked improvement in both physical and mental condition and she was discharged from the hospital cured.

From my experience with Ergo-Apiol (Smith) and from the experience of a number of other observers, whose findings are published in the literature of the past few years, this remedy represents an emmenagogue of the type of efficiency combined with the inestimable advantages of safety, trustworthiness and absence of any unpleasant after effects. It is probable that Ergo-Apiol owes its efficiency to the particular type of Apiol that it contains, the pure product from which all irritating and injurious impurities have been removed. But it is unquestionably also the accessory remedies, which enter into the combi-

nation that contribute to the efficiency of the whole. Ergo-Apiol was easily and agreeably taken by all the patients to whom I administered it, and in no case was there any nausea, eructation, or any other gastric disturbance. Unlike most other emmenagogues, it requires only small doses continued for a comparatively short time to bring about the desired therapeutic effects. Ergo-Apiol (Smith) has not only a stimulating effect upon the menstrual function in amenorrhea, but also a tonic effect upon the muscle fibers of the uterus, for after it has been administered for a few months, the uterus is almost always able to resume its function without any further aid from external sources.

In conclusion, I may note the fact that the treatment of amenorrhea in the insane is always a matter of greater difficulty than in persons with normal minds, and that a remedy that produces perfect therapeutic results, such as I have noted with Ergo-Apiol (Smith) in insane women, may be expected to perform the same services even more promptly in the average case of amenorrhea as met with in ordinary family practice. This is proved conclusively in the numerous cases reported by various observers who employed Ergo-Apiol (Smith) in menstrual disorders. Ergo-Apiol in the shape of capsules administered three times daily in doses of one or two, beginning a little before the expected menses, and continuing through the period, has proven the most efficient, prompt, safe, and pleasant emmenagogue that I have ever employed. My experience with the drug was such as to lead me to adopt it as a routine treatment in amenorrhea.

**Anasarca.**

The Anasarcin Chemical Co., Winchester, Tenn. Gentlemen.—Yours of March 16th, to hand. The sample tablets were duly received. After some delay we were able to get a supply through the jobber, and now have them as needed. I had a case of general anasarca, albumin in very large quantity and great disburance of the circulation, due to uncompensated valvular lesion, in which I had exhausted all the stock, orthodox, remedies without benefit; in fact the patient was steadily getting worse, voiding only 12 to 20 ounces of urine and breathing rapidly and with great distress nearly all the time. I expected an early demise and commenced the treat you recommend only as a *dernier resort*. Within three days there was improvement which has steadily continued. The elimination of urine gradually increased to 30, 40, then 60 to 80 ounces day, the tumultuous heart was steadied, breathing improved in quality, insomnia disappeared, albumin lessened. Now, after two months or a little less, the patient is practically well. There is no unsteadiness of the heart; the breathing is easy and he goes to bed and sleeps all night; there is no edema, and there is no albumin in the urine, of which he voids about 50 ounces per day. He is now taking four tablets a day and expects to get to his business as soon as the weather moderates a little. I had a parallel case, only more chronic, with an acute exacerbation, in which there were almost similar results, but not quite as satisfactory, owing first to the chronicity of the kidney trouble, an interstitial nephritis, and secondly to the intractibility of tho patient; but

on the whole the results were satisfactory, and much more so, than I could expect from any other line of treatment that I know of.

The ordinary diuretics and heart remedies distrub the stomach to a marked degree, whereas there seems to be improvement when taking the remedies suggested in your booklet.

Within a few days I have put another patient on the treatment. His trouble was inability to make the slightest exertion without the most dangerous and distressing form of dyspnea; in this case there very pronounced regurgitant murmur, general venous congestion, no albumin or edema. Six weeks' treatment had made very little improvement; urea was excessive, urine about 20 ounces. One week, taking four tablets *per diem*, has made a marked improvement.

Yours truly, J. K. Stockwell, M.D.,  
Oswego, N. Y., April 15, 1905.

**Certain Relief and Cure for Hay  
Fever Sufferers.**

We take pleasure in calling attention to the now famous prescription of a very prominent Philadelphia physician, as used on himself and on a great number of Hay Fever sufferers. We refer to Dr. Solis Cohen, who was the first to use and prescribe the Suprarenal Extract. The Physicians Standard Supply Co., 117 N. Broad St., Phila., Pa., whom Dr. Cohen has favored with his prescription and who keep a supply of the solution on hand for the trade, testify as follows:—"Experience has proven this to be an exceedingly valuable remedy. No failures have been reported. There has never been anything equal to it for Hay Fever and similar affections.



This treatment is being advocated and used by probably every well-known specialist."

This Extract solution may be used in a nebulizer, atomizer or douche. Literature on nose, throat, and lung affections furnished free on application to the above firm; also illustrated circulars descriptive of their extensive line of Nebulizers, Spirometers, Foot Pumps, Air Receivers, etc., as well as of their Perfection Vaginal Syringe. Send for illustrated booklet, containing valuable and interesting information on Sex and Health for Women.

#### **Metabolized Cod Liver Oil.**

The Waterbury Chemical Company of Des Moines, Iowa, who are manufacturers of Waterbury's Metabolized Cod Liver Oil (Tasteless) have lately opened up foreign trade in a number of South American countries, West Indies, and the Island of Cuba. This preparation has met with most phenomenal results and is conceded today to be the most powerful nutrient tonic on the market and is used in many of the largest Government and State institutions and in many of the foreign Hospitals.

#### **Uric-Antagon.**

(Uric Acid Antagonis.)

The name of this preparation alone tells much but not describing, or conveying an idea in any respect the wide field that Uric-Antagon takes clinically. The observer at the bedside quickly realizes the beneficial effects made manifest in rheumatism, gout, sciatica, lumbago, in all conditions involved in a uric acid diathesis and in certain cases of neurasthenia, neurotic lithemia, melancholia, migraine and

kindred troubles depending upon the above diathesis.

The class of diseases including rheumatism, gout, sciatica, etc., and all those included as depending upon the uric acid diathesis, have within the last half century been treated more or less empirically, before that time, always empirically, including opiates, iodid of potassium, mercurials, etc. When advancing knowledge of pathology revealed the uric acid diathesis the alkaline treatment including the salicylates came in vogue, and with the depressing antipyretic derivatives of coal-tar have done almost as much injury as good, the many cases of heart failure following their exhibition will always stand as an objection to their extended use.

We recommend the readers of this Journal to write to the Anti-Uric Co., Peoria, Illinois, for free trial bottle.

#### **Over 30,000**

Physicians are on Bell & Company's books as having purchased Sal-Codeia Bell, direct from them, twice or oftener during the past year, proving that Sal-Codeia Bell gives best results in rheumatism and all neuralgias. Many physicians purchased Sal-Codeia Bell a dozen times during the year and a number are now ordering in lots of five thousand tablets. It is also being prescribed by thousands all over the country, its sale having trebled within the past seven months. The firm wants all physicians to know the value of Sal-Codeia Bell in neuralgias and offers a sample, gratis, to any who have not used it. As they say, "Trial is proof" and the only proof and trial will prove the value of this product. See their offer on ad page 9 of this issue.













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